STAFFORDSHIRE COUNTY COUNCIL.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH,

GEORGE REID, M.D., D.P.H.,

FOR THE YEAR 1905.

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STAFFORDSHIRE COUNTY COUNCIL.

ANNUAL REPORT OF THE MEDICAL OFFICER OF HEALTH,

Presented to the Council at the Quarterly Meeting, November 13th, 1906.

IN this, my Seventeenth Annual Report, I propose to adhere, so far as collating the Reports of District Medical Officers of Health is concerned, to the general plan adopted originally, and deal with the various reports under subject headings, in place of devoting a special summary to each, as is done in some county reports.

Were it not for the fact that the Administrative County contains so many sanitary districts, the latter plan would, possibly, be the better, but, to adopt it under the circumstances, and, at the same time, give sufficient prominence to the more important features of each report under review, would necessitate needless repetition, many remarks being equally applicable to several districts.

I have again indexed the report, so that each question dealt with, whether of general or special significance, may at once be referred to.

I take this opportunity of thanking the Medical Officers of Health, who, almost without exception, have fallen in with my suggestions as to the introduction into their reports of certain details which, from the point of view of the County Council, are of great value.

In the "Summary of the Year's Work of the Sanitary Committee of the County Council," I have endeavoured to convey some idea of what has been done during the year in public health work, more with the view of indicating the lines on which the Committee are proceeding than in the hope that such a condensed account can convey an adequate idea either of the work itself or the good which has attended it.

G.R.

Summary of the Year's Work of the Sanitary Committee of the County Council, with General Comments on Public Health Administration.

As regards the summary of the work of the Sanitary Committee, I would point out that the year embraces a period of twelve months ending June 30th, 1906, as the last summary covered the ground up to the end of June, 1905. So far as that portion of the report which deals with the reports of District Medical Officers of Health is concerned, the period covered embraces 1905 only.

The routine work under the Rivers Pollution Prevention Acts has proceeded on former lines. The systematic work of inspecting existing sewage disposal works, and the collection of samples of sewage effluents, and of river water at fixed points on streams, has been conducted uninterruptedly as far as possible, and I am glad to be able to record an increase in the number of samples analysed, owing to diminished pressure in other departments of public health work, the result of an addition to my office staff recently sanctioned by the Council. This year, 256 analyses have been made, compared with 114 the previous year, and the samples analysed comprised the following :—Sewage effluents 195, river waters 58, and trade wastes 3.

It is customary to call the Sanitary Committee's attention at the time to any irregularities which are noted in the management of sewage works, and the responsible Authorities in such cases are invariably communicated with.

To comment at all fully, however, on the action which has been taken during the year in the matter of rivers pollution would require more space than can well be devoted to one subject in a summary of this description. Still, it may be useful to refer, shortly, to the more important questions in this department of the Sanitary Committee's work which have received attention.

I am pleased to be able to state that the improvement previously recorded in the condition of the river Tame at the point where it re-enters the County from Warwickshire is maintained, a circumstance which is mainly attributable to continued progress on the part of the Birmingham Tame and Rea District Drainage Board in improving and extending the sewage disposal works of that Authority. Year by year the wisdom of the policy adopted by that Board of extending the area of the biological filters becomes more and more apparent, and during the year a scheme was brought forward by their Engineer embracing additional works on these lines, for which a loan of £73,000 has been applied for. The Board also appear to recognise the fact that this sum will have to be supplemented at no distant date.

It has not been found necessary to hold a meeting of the Joint Committee of this Council and the Birmingham Corporation—the paramount Authority of the Birmingham Tame and Rea District Drainage Board—but, should occasion arise, this Committee will again meet; meanwhile, it is satisfactory to know that it still exists, and can be called together at any moment.

In view of the progress just recorded, it is all the more incumbent upon Authorities in this County higher up stream to proceed without delay with the improved sewage disposal schemes which most of them have either in hand or under consideration. The Sanitary Committee of the County Council are fully alive to the position, and, during the year which has passed, very strong pressure has been brought to bear on the Authorities in question.

It is satisfactory to be able to record that in the case of one of these districts, namely, Bilston, a scheme, which had been long under consideration, is now rapidly approaching completion.

As regards the County Borough of Walsall, the situation, so far as actual pollution is concerned, is unchanged, but the question has not been allowed to rest, and as the outcome of certain experimental work, extensive plans of new works are now approaching completion. I am hopeful, therefore, that in my next annual report I shall be in a position to record

that the proposed works are well in hand. It is but fair to point out that had it not been for the fact that the Borough Engineer of Walsall suffered from a long and serious illness which in the end, I regret to say, proved fatal, the plans in question would by this time have been submitted to the Local Government Board for approval.

As regards Oldbury, another serious offender at the head of the Tame, against whom, it will be remembered, the County Council found it necessary to take proceedings under the River Pollution Prevention Acts, a scheme has been formulated, and now awaits the approval of the Local Government Board, a loan for £38,300 having been applied for to carry out the work. This enormous outlay, in addition to what has already been expended on disposal works at Oldbury, is necessitated by reason of the exceptional character of the sewage, arising from the discharge into the sewers of a large volume of chemical trade waste, which, in its crude state, renders the sewage highly resistant to treatment. According to the special chemical expert who advised the County Council regarding the situation previous to the proceedings in Court, it would be quite feasible, at a trifling cost, if not a small profit, to have treated the waste in question before its discharge into the sewers in such a way that it would no longer interfere with the disposal of the sewage by ordinary means, but the owners of the works in question seem to have satisfied the Oldbury District Council that this was not feasible, hence the very exceptional expenditure involved. Regarding the conflict of opinion as to the feasibility of dealing with the chemical waste previous to its discharge into the sewers, I cannot hazard an opinion, but the fact that the chemical manufacturers in question, who are large ratepayers in the district, have agreed to pay a very substantial sum annually to the District Council for receiving the untreated waste into their sewers, shows that they, at any rate, are pretty confident that preliminary treatment of such waste is impracticable. I would remind the Council that the necessary negotiations between the District Council and the chemical manufacturers before an agreement could be arrived at caused considerable delay, and in response to an appeal from the District Council the County Council assented to an extension of the Order of the Court for a period of twelve months, dating from June, 1906.

As regards the other important polluting Authorities on the upper tributaries of the Tame, I may mention that plans of sewage disposal works have been practically completed for Tipton and Willenhall, and are about to be submitted to the Local Government Board for approval.

In the north of the County very satisfactory progress has been made. The new works at Hanley are being pushed on, and already 2½ acres of filters are in operation, an area which nearly suffices to deal with the dry-weather flow of sewage. The excellent results obtained from the experimental plant—upon the lines of which the main works are being constructed—are also being obtained from that section of the main works already in use, and, with efficient management, I am confident this high standard of work will be maintained.

During the year under review, I have made further use of the experimental sewage filter plant at Hanley with the view of determining more precisely the actual changes which take place at different depths of the filters and tracing what becomes of the suspended solids in the septic tank effluent discharged on to the filters. These extended observations have led to very important results, which have been set forth in a report to the Sanitary Committee, which formed the basis of evidence I gave, for the third time, before the Royal Commission on Sewage Disposal. In this short summary it is impossible to go into detail regarding the results, but one important fact was demonstrated, namely, that, in the case of the Hanley sewage, at any rate, the work of purification is practically completed in the superficial layers of the filter, where the suspended organic solids are also liquefied by ærobic organisms. It follows from this that the sewage filters at Hanley need not be constructed so deep as was originally intended, a fact which the Corporation may avail themselves of in carrying out the remainder of the work.

I must not omit to mention the fact that a very complete little scheme of sewerage and sewage disposal for the village of Brewood, in the Cannock Rural District, has been completed, the works having been opened in December last. This was a very economical scheme, provided for out of current rate, and it is much to the credit of the District Council that they determined to find the money in that way and so

avoid the needless expenditure which would have been necessary in order to comply with the Local Government Board's requirements had a loan been applied for.

As regards North Staffordshire, I may mention that extensive works on modern lines were opened at Newcastle in May last, which are yielding good results; at Burslem, Tunstall, and Longton, new works are in progress, and, I hope, will be completed within twelve months; at Fenton a new scheme has been finally approved by the Local Government Board; and in other districts, for example, Stoke and Wolstanton, negotiations are in progress between the respective Authorities and the Sanitary Committee of the County Council, which, I hope, will soon have a satisfactory termination.

In this summary for the past three years I have suggested that the County Council—in view of the Third Report of the Royal Commission on Sewage Disposal and possible legislation on the subject of dealing with trade wastes—would do well to suspend any further action under the Sections of the Acts dealing with such matters. So far, the Government have not yet brought forward any Bill based upon the report referred to, and matters are, unfortunately, in the same unsettled state as heretofore.

In this connection, on the initiative of the Staffordshire County Council, an influential Joint Committee, representative of County Councils and the Councils of County Boroughs in the Trent Watershed, was formed two years ago to watch the progress of events and take such steps as may be deemed necessary in the interests of these Authorities. Several meetings of this Joint Committee were held, and, a general policy having been arrived at, in due course—should occasion arise—steps will be taken to bring the views of the Joint Committee before the notice of those who may be responsible for the framing of any legislative measure dealing with this question.

It was with regret that the County Council found it necessary to institute proceedings under the Rivers Pollution Prevention Acts against the Seisdon Rural District Council on account of continued pollution of the Stour from the village of Kinver; circumstances, however, left no other alternative.

The case came before the County Court Judge at Stourbridge in May last, and resulted in a verdict for the defendant Council, against which verdict an appeal has been lodged, which has not yet been heard.

During the year Local Government Board Inquiries, relating to proposed schemes of sewage disposal; have been held at Birmingham (Birmingham Tame and Rea District Drainage Board) and at Fenton.

As regards the other work under this heading, besides numerous communications with Authorities and consultations with their officers, 34 special reports have been presented to the Sanitary Committee during the year, dealing with questions relating to river pollution. Space, however, will not allow of more than an enumeration of the districts to which these reports had reference, as follows :—Bilston, Fenton, Hanley (County Borough), Kidsgrove, Lichfield, Longton, Newcastle, Oldbury (Worcestershire), Stoke-on-Trent, Tettenhall, Tipton, Uttoxeter, Wednesbury, West Bromwich (County Borough), Willenhall, and Wolstanton Urban Districts ; and Newcastle, Cannock, Eccleshall, Kinver, Cheadle, and Tutbury Rural Districts.

As regards the general work of the Sanitary Committee, reports have been presented, as the outcome of special inspections and inquiries relating to matters affecting the following districts, namely :—Burslem and Coseley Urban Districts and Walsall Rural District. In addition to these special reports, many matters have been dealt with arising out of my Annual Report for 1904, and affecting 18 districts, as follows : Bilston, Brownhills, Darlaston, Heath Town, Leek, Longton, Sedgley, Smallthorne, Stoke-on-Trent, Tamworth, Tipton, and Wednesfield Urban Districts ; and Cheadle, Gnosall, Kingswinford, Mayfield, Tutbury, and Uttoxeter Rural Districts.

With reference to the question of isolation hospital accommodation, it is satisfactory to be able to record that the two small-pox hospitals, to serve large joint areas in the north and south of the county respectively, referred to in my last Annual Report, have been completed, both having been formally opened during the year.

During the year applications under the Isolation Hospitals Act for contributions from the County funds towards the expenses of hospitals which have been provided for the Lichfield Urban and Rural Joint Area and the Cheadle Rural District have been received. As regards the former, I regret to say I was unable to report that the provision made came up to the standard required by the County Council to entitle to contribution ; accordingly, the application was not entertained. In the case of the Cheadle Rural District Hospital, however, I was able to report that, providing certain inexpensive additions and alterations were carried out, the accommodation would be such as would entitle the Authority to a contribution. This information was conveyed to the District Council, with the result that plans, which I have approved, have been prepared, and the work is about to be put in hand.

The Council are again to be congratulated upon the success which has attended the arrangement for the gratuitous bacteriological examinations in suspected cases of diphtheria, enteric fever, and phthisis. In some districts, however, medical practitioners have not availed themselves of this aid to accuracy of diagnosis to the extent to which one had hoped they would.

In the text of this report, the opinions of many of the District Medical Officers of Health regarding the value of the scheme are quoted, and in the following table the actual number of specimens examined since the commencement is set forth :—

Bacteriological Examinations in Suspected Cases of Diphtheria, Tubercle, and Enteric Fever.

	Diphtheria.				Tubercle.				Enteric Fever.			
	Positive.	Negative.	Doubtful.	Total.	Positive.	Negative.	Doubtful.	Total.	Positive.	Negative.	Doubtful.	Total.
Commencement of Scheme, Oct. 20, 1898, to June 30, 1899	110	101	1	212	...	...	...	...	...	...	...	...
From July 1, 1899, to June 30, 1900	196	180	2	378	...	...	...	...	...	...	...	...
From Jan., 1900, to June 30, 1900..	...	...	...	...	9	14	...	23	5	4	...	9
From July 1, 1900, to June 30, 1901...	350	350	30	730	30	70	...	100	36	36	2	74
From July 1, 1901, to June 30, 1902...	190	367	14	571	25	67	...	92	26	32	3	61
From July 1, 1902, to June 30, 1903...	247	421	...	668	45	77	...	122	8	41	...	49
From July 1, 1903, to June 30, 1904...	183	324	...	507	41	107	...	148	3	34	4	41
From July 1, 1904, to June 30, 1905...	231	494	22	747	36	100	...	136	8	24	...	32
From July 1, 1905, to June 30, 1906...	271	469	15	755	56	103	...	159	13	34	4	51
Totals from commencement of Scheme to June 30, 1906	1778	2706	84	4568	242	538	...	780	99	205	13	317

With reference to the administration of the Midwives Act, 1902, it is evident that the work will increase more and more as time goes on, and although it may not yet be possible to point to any definite return for the labour spent in this direction, one is entitled to hope that the daily instruction given through the systematic visits of the two Inspectors under the Act will ultimately lead, at least, to the observance of more cleanly methods on the part of the numerous uneducated and untrained midwives in the County, and even if that could be achieved it would be an immense gain. The full benefit from the Act, however, will not be secured until trained midwives gradually take the place of the numerous ignorant women now in practice.

The Council have already been informed as to the progress of the work in the two divisions of the County, but the following tabular statement, which I have compiled from official returns and from information supplied by the Inspectors, will indicate the present position of the County as regards the number of midwives on the Register and the number who have notified their intention to practice :—

Number of midwives on Roll up to July 15th, 1905 :—

Administrative County	758
County Boroughs	245
Total	1003

Number who have notified their intention to practice :—

Administrative County :	
North	298
South	304
County Boroughs	144
Total	746

During the period covered by this report (July 1st, 1905, to June 30th, 1906), in compliance with the Rules of the Central Midwives' Board, 656 notifications have been received from certified midwives, comprising the following :—

Notification of sending for medical help ..	379
Notification of still births	259
Notification of death of mother	3
Notification of death of child	15

Visits of Inspectors during twelve months, July 1st, 1905, to June 30th, 1906.

AREA.	No. of Midwives who have notified intention to practise.	Visits during Period.			No. of interviews.
		Single.	Duplicate or more.	Total.	
North	298	1044	296	1340	989
South	304	607	122	898	529
Total	602	1651	418	2238	1518

Particulars as to Equipment and Efficiency of Midwives Visited.

Division.	No. of Midwives who have notified intention to practise.	Requirements.						No. reasonably clean as to		No. who can read and write.	No. who can		No. with reasonable knowledge as to		No. capable of recognising need for medical help.
		Washing Dresses and Aprons.	Bags Equipped.			Books, &c.					Read Thermometer.	Pass Catheter.	Infant feeding and management.	After treatment of mother.	
			Fully.	Partially.	Nil.	Case Books.	Forms.	Person.	Home.						
North ..	298	251	67	175	30	240	241	191	203	151	71	130	222	235	228
South ..	304	257	77	196	25	264	226	190	228	142	97	34	174	242	177

In addition to the systematic visits paid by the two Inspectors, 117 enquiries have been made regarding irregularities, upon each of which reports have been presented to me as the administrative officer of the Local Supervising Authority. In all cases in which I have deemed such a course necessary, the attention of the Local Supervising Authority has been called to irregular conduct on the part of midwives, and such action has been taken as, upon further enquiry, has seemed to be necessary, the midwives in question being given an opportunity of appearing before the Authority to offer any explanation regarding their conduct they may have to offer. In other cases I have personally written to or interviewed the midwives, cautioning them regarding their conduct in the future.

In addition to such ordinary enquiries into irregular conduct conducted by both Inspectors, Dr. Greig has specially enquired into, and reported upon, the circumstances attending the occurrence of puerperal fever cases in the practice of midwives on 23 occasions.

In all, during the year, 32 cases of irregular conduct or malpractice were investigated by the Local Supervising Authority, resulting in 10 of the cases being formally reported to the Central Midwives' Board; the outcome of which was that in three cases the names of the midwives were removed from the Roll and their certificates recalled, the other seven being severely reprimanded and cautioned regarding the future.

During the year, nine midwives have died, one has voluntarily surrendered her certificate, and twelve have notified their intention of giving up practice.

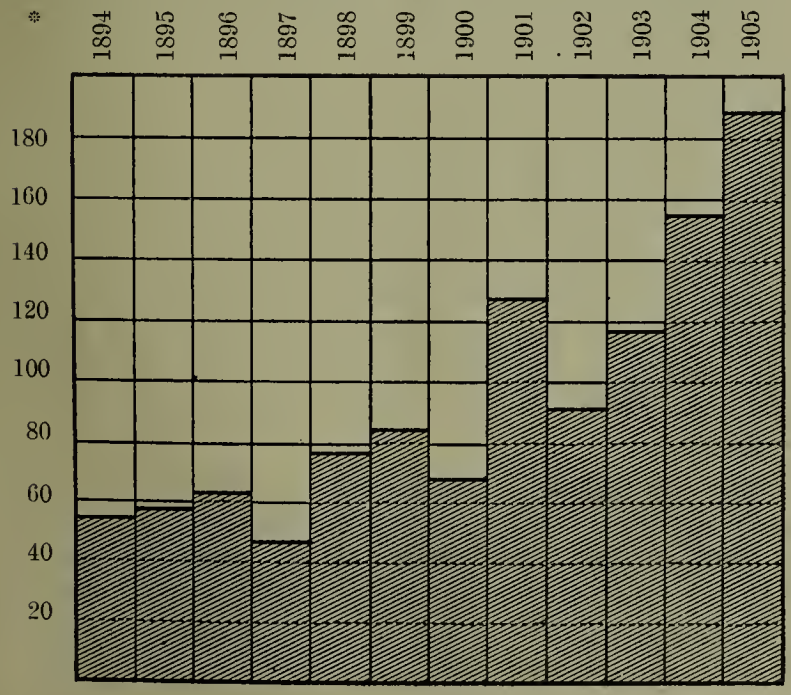
With reference to the new department of my work as adviser of the County Education Committee on all matters pertaining to health which come under their jurisdiction, a good deal of my time has been occupied in conferring with the Architect of that Committee with reference to the ventilation, warming, drainage, and sanitary arrangements of existing schools, and in considering and reporting upon plans and specifications of proposed new schools and alterations and additions to old schools. I have also attended numerous

meetings of Sub-Committees of the Education Committee, at which questions affecting the health of school children have been under consideration.

With reference to the consultation work of the health department, which does not necessarily come before the Sanitary Committee or County Council, the work continues to grow. This year I have been consulted on 190 occasions, (compared with 157 last year), by Medical Officers of Health and other officers of Local Authorities, and by officers of various Committees of the County Council on special matters of importance which have arisen. This consultation work occupies a considerable amount of time, and often involves visits to different districts, either to make enquiries incidental to the points submitted, or to attend meetings of Local Authorities or committees. It embraces also a careful study of plans and specifications of works and buildings, in order to report thereon.

The following diagram shows the growth of this work during the past twelve years :—

Diagram showing Consultations with Officers of Sanitary and other Authorities, 1894-1905.



With reference to this year's district reports, I am again glad to be able to record that continued efforts are being made by many of the urban authorities to abolish privies and private well supplies in favour of water-carriage systems and public water supplies.

As regards the former question, it is to be hoped that the account of this movement recorded in this report will stimulate those authorities, of urban districts more especially, who are not displaying much energy in this direction, to adopt this excellent policy. As regards the latter question, the remarks which follow under the heading of Water-supply afford ample evidence of the risks attending the continuance of private well supplies, especially in populous districts, and point to the extreme importance of substituting for these, supplies from a public source when such are available, or, failing that, of making every effort to protect wells from surface contamination.

If there is one question, however, which is of more vital importance than another in this County, it is the continued appalling mortality among infants, especially in the urban districts, and it behoves all who are in a position to exercise any beneficent control over the contributory causes of such mortality to let no opportunity pass of doing what is possible to remedy the evil. It is true that the decline in the infant mortality noted in 1902 has been maintained, but this, probably, has arisen from natural causes, namely, climatic conditions, which have lessened the incidence of infantile ailments directly attributable to preventable causes, and not, I fear, to any material progress in the adoption of preventive measures. For years this question has engaged the attention of health officers throughout the country, and again in the text of this report I have set forth the opinions of many of the Medical Officers of Health in the Administrative County on the question.

It is satisfactory to find that the question of infant mortality and its prevention is now being actively taken up by prominent members of important public health bodies, and it is to be hoped that the movement, which was initiated at a recent national conference on the subject, held in London, will not be allowed to die out.

Of course, there are many contributory causes of excessive infant mortality, most of which are preventable, but there is one which far exceeds all others in potency, namely, the prevailing ignorance among mothers as to the proper feeding of infants. Some authorities in the County have creditably done what lies in their power to break through this ignorance by appointing women visiting inspectors and providing courses of lectures on health subjects, with the assistance in some cases of the County Education Committee, but, commendable though such efforts are, I fear they are comparatively futile so far as the object aimed at is concerned. Experience, I fear, compels one to come to the conclusion that it is hopeless to attempt to educate the present race of mothers and overcome the ignorant tradition of centuries. At the same time, some good in this direction may ultimately result from the administration of the Midwives Act, for a midwife has great influence over mothers, and sound advice given during the early weeks of the child's life must, occasionally at any rate, bear fruit. No real headway will be made, however, until the rising generation of both sexes are systematically taught elementary health principles at school. The first step in this direction is to educate the teachers in order that they may be able to give the necessary instruction, and the Education Committee of this County are to be congratulated on having gone thus far.

I may here refer to an important addition which has this year been made to the statistical tables required to be filled in by the Local Government Board, which sets forth the causes of death among infants, classified according to age in weeks and months. The information afforded by such returns, as time goes on, will be very valuable, and it is most desirable that the returns should be sent from every district. I regret to say that in some cases they have not been forthcoming this year, and for that reason I cannot show a general statement for the County—an omission which I hope will not be necessitated another year.

Besides the Annual Reports of Medical Officers of Health, I have received 40 special reports during the year, having reference chiefly to outbreaks of infectious disease.

I am pleased to say that all the Annual Reports of District Medical Officers of Health are now printed.

Summary of Reports with Comments.

Area and Population.

This year there is a slight alteration to record in the area of the Administrative County owing to part of the parish of Milton, having an area of 194 acres and a population of 1,138, being transferred to the County Borough of Hanley. As, however, the Order transferring the area did not come into operation until November, 1905, and as only one death occurred in the transferred area subsequent to that date, I have determined to disregard the alteration for statistical purposes this year.

In the following table the actual census figures for 1901, and the estimated population of the Administrative County up to the middle of 1905, are set forth, the urban being distinguished from the rural districts :—

	Census, 1901.	Estimated to middle of 1905.	Increase.
Urban	682,503	733,452	50,949
Rural	193,446	198,566	5,120
Total.....	875,949	932,018	56,069

Births.

The births registered in the Administrative County numbered 28,915, the number in the urban districts being 23,532, and in the rural districts 5,383.

The mean birth-rates in the whole Administrative County, and in the urban and rural districts respectively, for three quinquennial periods and for 1904 and 1905 individually, are shown in the following table, in which corresponding rates in England and Wales, and in the large towns in England, taken from the Registrar-General's returns, are included :—

DISTRICTS.		Birth-Rate per 1000 of Population.				
		5 Years 1889-1893.	5 Years 1894-1898.	5 Years 1899-1903.	1904.	1905.
Staffordshire	Combined Urban & Rural	34·4	35·4	33·1	32·5	31·0
	Urban	36·0	30·5	34·2	33·7	32·0
	Rural	30·8	34·0	30·2	28·4	27·1
England and Wales		30·8	29·7	28·7	27·9	27·2
Large Towns in England		31·5	30·7	29·7	29·1	28·2

In Biddulph, where a birth-rate of 36·0 is recorded, the Medical Officer of Health points out that it exceeds the average by 1·7, and has only twice been higher, namely, in 1895 and 1901. With this exception, in most of the reports attention is directed to the fact that the rates are exceptionally low.

The Medical Officer of Health of Fenton, where the rate was 36·5, points out that, with one exception, it is the lowest during the past 10 years.

The Medical Officer of Health of the Borough of Newcastle, in referring to a rate of 27·5 as being the lowest recorded for at least 20 years, writes :—" In assigning a cause for this decrease, there are many factors which have to be taken into consideration, and probably not the least important is the general slackness of trade and the poverty which has existed in the town."

In Sedgley it is said that although the rate has been slightly higher the last two years, this year's rate of 34·1 is 3·9 lower than the mean for the previous 10 years.

In referring to a rate of 30·8, compared with a mean rate of 36·7 for the previous 10 years, the Medical Officer of Health of Willenhall writes :—" This decrease in the birth-rate is partly artificial, and is not confined to Willenhall—for a large decrease has been shown not only in England, but in all Western Countries in recent years, and it may before long lead to serious political consequences to some nations. It appears to be due not only to a determination of the people to raise for the time being their standard of comfort, but is

also an indirect consequence of political and economic forces they cannot control—such as the incidence of death duties, the huge sums raised by imperial and local taxation, the growth of limited liability companies, the power of capitalists to monopolise the best shops in small towns, making it increasingly difficult for middle-class parents to secure an opening for their sons' careers, the growth of facilities for travel, carrying business to the great towns, the tendency of the Government to encourage the trade of the larger towns to the detriment of those that are small, by increased parcels-post facilities, and probably also by the operation of the Local Taxation Act of 1890 for 'the distribution and application of certain duties of customs and excise.' So far as this town is concerned, to test the truth of my remarks, compare the number of non-resident proprietors of shops in and near the Market Place now with the prosperous middle-class proprietors who lived there 25 years ago, and compare the prosperous, middle-class men who brewed and sold their own ales then with the non-resident limited liability capitalist owners of nearly all the licensed houses to-day, mostly conducted by managers earning small wages."

In referring to a rate of 22·7 in Blore Heath Rural District, the Medical Officer of Health states that, with one exception, namely, 1901, it is the lowest on record.

The Medical Officers of Health of the Rural Districts of Lichfield and Stoke-on-Trent, where the rates were 27·5 and 29·1 respectively, both state that they are the lowest on record.

Deaths.

The number of deaths registered among persons belonging to the Administrative County amounted to 14,367, the number in the urban districts being 11,686, and in the rural districts 2,681.

In the following table comparative figures for the past 17 years are given, together with the corresponding figures for the country as a whole, and for town and country districts throughout England :—

DEATH-RATE PER 1000 OF POPULATION.

	Staffordshire.			England.		
Year.	*General.	*Urban.	Rural.	General.	Large Towns.	Country Districts.†
1889 ...	18·0	18·9	15·4	17·9	19·2	16·5
1890 ...	19·8	20·0	16·3	19·5	21·6	17·5
1891 ...	19·9	20·7	18·1	20·2	22·4	18·5
1892 ...	18·8	19·2	17·9	19·0	20·6	18·1
1893 ...	18·6	19·5	16·3	19·2	21·5	17·4
1894 ...	16·2	16·5	15·4	16·6	18·0	15·6
1895 ...	18·5	19·1	16·9	18·7	20·5	17·0
1896 ...	17·2	18·0	15·2	17·1	19·2	15·3
1897 ...	17·8	18·6	15·7	17·4	19·1	15·8
1898 ‡...	17·7	18·4	15·5	17·6	18·3	16·0
1899 ‡...	17·2	17·8	15·4	18·3	20·2	16·3
1900 ‡...	18·7	19·3	16·8	18·3	19·5	16·9
1901 ...	17·0	17·6	15·4	16·9	17·7	15·3
1902 ..	15·8	16·3	14·4	16·3	17·4	15·3
1903 ...	15·2	15·8	13·5	15·4	16·3	14·8
1904 ...	16·4	17·2	14·4	16·2	17·2	15·3
1905 ...	15·4	15·9	13·5	15·2	15·7	14·9

* Excluding Brownhills in the case of the year 1897.

† Certain proportion of Urban residents included.

‡ The figures for Burton-on-Trent are taken into account for the three years 1898-1900 only.

The Medical Officers of Health of the Urban Districts of Amblecote, Tettenhall, and Willenhall, and the Rural Districts of Blore Heath and Cannock point out that the death-rates this year were the lowest on record.

The death-rates in urban and rural districts, together with the figures upon which they are based, are shown in the tables at the end of this report. In the following table the figures are given for those urban districts in which the rates this year reach 20·0 per 1,000, together with figures and remarks bearing on the influence which causes, preventable and more or less non-preventable, have had in causing such high rates. The districts are placed in order in accordance with the death-rates, the highest being placed first. The fact must not be overlooked, however, that there are other districts besides those appearing in the table in which the rates were by no means satisfactory, as a glance at the detail tables at the end of this report will show.

DISTRICT.	Death-rate per 1000 of Population.	Population estimated to middle of 1905.	Number of persons to the Acre.	Zymotic death-rate per 1000 of population.	Occupation, &c.	Increase over average of entire districts from the undermentioned diseases, affecting appreciably the general rate.				Position as regards mean death-rate for previous 10 years.
						Measles.	Whooping Cough.	Diarrhœa.	Diseases of Respiratory Organs.	
Smallthorne	21·5	12,650	4·3	4·34	Working class.	Considerable.	..	..	Considerable.	18·6
Longton ..	21·1	35,912	17·9	2·97	do.	..	..	Considerable.	do.	23·6
Burslem ..	20·7	41,622	22·2	2·81	do.	..	..	do.	Slight.	21·7
Short Heath	20·3	3,783	3·5	1·58	do.	..	Slight.	..	do.	15·7
Darlaston ..	20·2	15,660	19·0	3·31	do.	..	..	Considerable.	..	22·2

Considering the fact that the general death-rate of the county as a whole is distinctly a low one, namely 15·4, the above rates must be looked upon as being highly unsatisfactory. At the same time, in the case of Short Heath, the rate is exceptional, as will be seen from the last column, and it must be remembered that the smaller the population the greater liability to fluctuation and the less significant are one year's figures. As regards the other districts in the table, however, the last column shows them to be high death-rate districts, and it behoves the respective authorities to make every effort in their power to effect a reduction in the rates by strictly enforcing the provisions of the Public Health Acts and local Bye-laws.

With reference to the all-round reduction in the death-rates, I would point out that it must not be attributed entirely to improved hygienic surroundings, as there are other causes which partly account for it—notably the somewhat exceptional climatic conditions which had the effect of lowering the infant mortality—at the same time, the steady decline in the rate, co-incident with sanitary progress, is highly satisfactory.

Infant Mortality.

It has been my practice in previous years to compile a table showing the districts in which the infant death-rates have been exceptionally high, and I have usually adopted a rate of 200 and upwards as the qualifying figure for this black-list, but owing to the rather low rates, I have this year fixed the figure at 190. It must be remembered, however, that

this figure is a very high one, and notwithstanding that fact, there are five districts in the county where it is exceeded this year, as the following figures show :—

Deaths among children under one year in certain districts per 1,000 registered births.

	Burslem.	Darlaston.	Longton.	Short Heath.	Tunstall.
5 years 1889-93...	193	214	225	171	213
,, 1894-98...	204	212	247	141	224
,, 1899-1903	198	204	227	147	200
1904...	195	196	194	99	245
1905...	202	218	196	195	200

With the exception of Short Heath, it will be noticed that all the districts in this year's table are high infant death-rate districts. In the case of Short Heath, much importance need not be attached to this year's high rate, considering the comparatively low mean rates for previous years, and, having regard to the small population, the occurrence may fairly be attributed to accidental or exceptional circumstances. This explanation, however, does not apply to the other districts in the table, and a great responsibility rests upon the respective authorities to make every possible effort in the direction of correcting the defective sanitary conditions in such districts which conduce to infant deaths, and in adopting such other preventive measures as may be specially applicable, under the advice of the respective Medical Officers of Health.

The Burslem Corporation have wisely appointed a woman inspector, who visits the houses immediately after the registration of births and gives instruction on the proper feeding and care of infants. The following is quoted from a report by this inspector, which is embodied in the report of the Medical Officer of Health :—" In spite of visiting and distributing leaflets with instructions on the feeding of children, the infantile mortality remains high, and in thinking over some of the causes which may tend to help the high infantile mortality the clothing of young children may be of some importance,

as one often finds children taken out of a warm room into the open air and there exposed to cold winds, etc., without any extra clothing on, and as a result of this exposure, chest troubles, which so often prove fatal in young children, are brought on.

"Then again, the feeding of children plays a very important part in infantile mortality. In hand-fed children one often finds boiled bread, cornflour, and other unsuitable foods are given, and as a result the children suffer from convulsions, and often deaths occur from this cause; and as a proof of the importance of proper feeding we find that 19·2 per cent. of the hand-fed children suffer from convulsions, and only 16·2 per cent. of the breast-fed are so affected.

"In some cases I find because a baby, for some reason or other, is not coming on as the mother would like it, she gets it into her head that the baby is 'wasting away,' and seems to think that nothing she can do can save it, and so contents herself to let it die; but in several cases where the instructions on feeding have been carefully carried out the children have improved and become bright and healthy."

Having regard to the persistent high rate of infant mortality in Darlaston, the following quotation from the report of the Medical Officer of Health of the district should not be overlooked by his Authority:—"I regret not being able to report any real improvement in the number of deaths recorded among infants during the year.

"The general conditions of life among the poor contribute materially to this unsatisfactory state of things, and while one recognises with pleasure the evident progress that has been made in the provision of better artisans' dwellings within recent years, yet much old property still exists in the district. Many of these houses are damp, dilapidated, and frequently overcrowded, with practically no arrangements for food storage, and more often than not possess an offensive privy midden, which is perpetually poisoning the surrounding soil. Such an environment offers an effective check to the successful passage of children through the first year of life, and does much to foster diarrhœa, tuberculosis, and many other diseases incidental to childhood.

"Parental ignorance and neglect in feeding have only to be added to complete the list of causes which operate most powerfully against the child.

"Better houses, together with the intelligent application of the rules of elementary hygiene to everyday life, are required before we can expect to cope successfully with this important problem."

The Medical Officer of Health of Longton writes :—"The decline in these particular causes of death, viz. :—diarrhœa, gastritis, gastro intestinal catarrh, and enteritis (non-tubercular), tends to show that the general sanitation of the borough is steadily improving, and that the Lady Sanitary Inspector's work is beginning to prove itself in the better feeding of the babies. Only by continuing this work of the Lady Sanitary Inspector can we hope to ultimately overcome the ignorance that prevails so much in the rearing of infants, unless, indeed, the Education Committee could help us in the future by instituting a course of domestic economy, including the feeding and management of babies, this course to be taken out by the older girls of the elementary schools (*i.e.*, the prospective mothers of the future). I am quite sure that legislation on these lines must come about at no very distant date, in face of the fact that the birth-rate of the country is declining so rapidly. During the early and late months of 1905 the weather was very severe, and the greatest number of deaths from respiratory diseases occurred then, but still we should not have had so many deaths from these diseases if mothers did not go out to work, and in order to do so take their babies out to nurse, so exposing them in the early morning and late in the evening in such inclement weather. There is undoubtedly a regular slaughter of innocents every year, in Longton, due to this and premature births, and I am afraid until we can obtain legislation to prevent mothers from going out to work we shall not be able to reduce these two causes of infantile mortality.

"Although the general sanitation of the borough is steadily improving, the process is slow, and will be so until we can clear out all the cesspools and open ashpits, and have all the back passages paved. I am pleased to note that negotiations are taking place with property owners for the purpose of

expediting the conversion of these cesspools, and I would like to see bins substituted for all ashpits.

"I am also pleased to mention that the back passages are now receiving attention from the Sanitary Office, and hope that they will all be paved before very long.

"Our infantile mortality still compares very badly with the whole of England and Wales and the larger towns."

The Medical Officer of Health of Tunstall writes:—"Much attention is being constantly given to this wastage of human life, and as the causes of the high rate of infant mortality are well recognised, surely some efficient and practical remedies ought speedily to be brought to bear upon the matter. In our own sphere much can be done by improving the standard of house accommodation for the working classes, and while urging personal and domestic cleanliness, see that the surroundings of the dwellings are such as will give credit to a well governed town."

So much for the comments of those Medical Officers of Health whose districts appear this year in the black-list as regards infant mortality. The following extracts under this heading are from a few of the other reports, in which special prominence is given to the subject.

The Medical Officer of Health of Bilston, having referred to the causes, deals then with the remedies, as follows:—"It is absolutely essential therefore that the soil be kept as free from impurities as possible, and that poisonous emanations from the soil be shut off from the houses. The former condition is attained by having all sewage matter carried away from the houses as rapidly as possible, without soaking in the soil, and the latter condition is satisfied by having a layer of concrete at least six inches thick on the surface of the ground below every dwelling-house, in addition to the usual damp-proof courses. These two conditions, as also the provision of ample means of ventilation, in and about and underneath dwelling-houses, should be insisted upon whenever possible, and especially in all new dwellings.

"The appalling ignorance amongst mothers as to the proper feeding of infants is most difficult to deal with. Various means have been suggested, such as the issuing of leaflets,

giving simple instruction in plain language—a method that, on my suggestion, has been tried here for some years past, with, I fear, little benefit—and the appointment of women inspectors to visit the houses and explain to the mothers ; and further, the provision of lectures on the subject.

" These have all been more or less failures, for it is hopeless to expect to overcome the ignorance of the mothers in the present day. The only hope is to educate the children in the schools, and for that purpose the teachers themselves should be taught at least the elements of hygiene—general and domestic—and thereby become equipped for the proper instruction of the children."

The Medical Officer of Health of Cannock Urban District writes under this heading as follows :—" It will be noted that most of these deaths are from premature birth, wasting diseases due to malnutrition, and chest mischief from undue exposure. Diarrhœa and marasmus in the main indicate improper feeding with starchy foods, &c. Instruction of school teachers and senior scholars in ' infant hygiene ' is to be recommended as a step in the right direction for disseminating the necessary knowledge in the rearing of infants. The Education Committee of the County Council have instituted training classes in ' infant hygiene ' for school teachers, and I advise your Education Committee to apply to the County Council for a course of lectures on this subject to the teachers and senior girls of the schools in this district."

The Medical Officer of Health of Coseley writes :—" Seeing that the fate of a large percentage of the infants who die under one year of age is sealed by the time they are six weeks old, it is desirable that information of births should be required to be given sooner, for instance, by midwives, so that the mothers, especially young mothers, might be visited by the time the child is ten days old. Of course, lady health visitors are required for this work."

The following information is the outcome of a special enquiry by the Medical Officer of Health of Fenton regarding deaths registered from diarrhœa in that district during July and August :—" Of 23 deaths from diarrhœa which occurred during these two months among infants under one year of age, the mode of feeding was :—

Breast-fed	1
Bottle-fed	15
Both..	2
Answers unreliable or uncertain	5
	23

"Of the 17 bottle-fed children, the food used was :—

Cow's milk	11
Condensed milk	3
Patent food..	1
Improper food	2
	17

"Of those fed on cow's milk, in three instances only was the milk delivered twice a day.

"The milk-supply was from five distinct sources, each of these also supplying a large number of families in which no cases of diarrhœa occurred. Of the 17 bottle-fed babies, in 10 cases the mothers went to work. There was considerable difficulty in getting parents to discriminate between the mode of feeding originally used and that prescribed after medical aid had been called in ; in many cases also there was some difficulty in impressing the fact that the inquiries were being made for the benefit of the people, and not with a view to getting them into 'trouble.' Hence some of the answers have been classified as unreliable or uncertain.

"In two cases only was any sanitary defect found at the houses inspected."

Under this heading, the Medical Officer of Health of Heath Town writes :—"This question is perhaps the most important that we have to deal with. Insanitary surroundings show a very clear reflex on the infant life in their midst. Children under one year are much more susceptible to the influence of environment than their older relatives. Until they can be removed from dirty, ill-ventilated houses, from proximity to foul yards, ashpits, pigsties, and privies, the incidence of diarrhœa and other infantile diseases must be heavy.

"The other factor contributing to excessive infantile mortality is the gross ignorance of mothers on the feeding and general management of infants and their food, associated as it is with their proud complacency that they know all about it, and their contempt for the advice of those competent to instruct them.

"Your Council has sanctioned my suggestion that the Registrar should be supplied with cards containing instructions for feeding infants. These are given away with each birth certificate. During the latter part of the year I have been supplied with returns giving the address of each child that is born, and have kept a card street index, and have visited some of the homes, and find that in most cases the mothers appear to have hung up the cards and used them, and the children are thriving. In other cases no notice has been taken of them, and it is in these cases where the persistent efforts of a health visitor would probably break down this indifference and arouse mothers to an adequate realization of their duty to their infant. Such an officer is as necessary as the Midwives' Inspector, and I hope the County Council will be able to appoint one to work several combined districts, or at least make it possible for such a combination of districts to do so.

"Last year I advocated at some length the teaching of hygiene in all elementary schools in your district. This has been done in many districts, and especially the training of the elder girls in infant feeding and management. This will have undoubted influence on infant mortality in the not distant future. The dogmatic assurance of the present race of mothers is difficult to cope with, but there is hope in the coming generation if properly educated ; but each year that the question is postponed puts off the advent of the much-desired influence. Last year I sent a copy of my report to your Local Education Committee, marking the paragraphs dealing with this matter, and requesting an expression of their views on the matter, with which, however, they have not favoured me."

The Medical Officer of Health of the Borough of Newcastle writes :—" Taking the 107 deaths under one year, I find that

45 deaths occurred during the first month of life, and of these 45 deaths, 35 were due either to premature birth, weakness or debility from birth, or wasting from troubles with the digestive system. I don't know that anything very much can be done by you with regard to premature birth, but I think if some means could be devised by which mothers and those having the care of infants could be taught the proper and best methods for the care and artificial feeding of infants (when the natural feeding cannot be carried out), that loss of infants' lives coming under the headings of debility from birth, digestive troubles, and convulsions, might be substantially reduced.

"In order to make an attempt, I would suggest that the Registrar of Births be asked to distribute leaflets containing instructions as to the care and proper feeding of infants to the persons concerned, whenever a birth is registered—just as the vaccination papers are now distributed by him—the Corporation to supply the leaflets, the cost of which would be very trifling. This is what is being done in most of the other towns, and would be an effort in the right direction. Moreover, if parents would register the birth of their children at an early date they would materially assist in the carrying out of this scheme."

The Medical Officer of Health of Quarry Bank writes :—"With the advent of the Midwives Registration Act, it was hoped that more care for the child and instruction to the mother would be gradually brought about. It is, however, too early to expect much from this source, especially as the midwives are all at present of the untrained uneducated class, who hold their diplomas from long service ; a class that will disappear in the lapse of time, to be replaced entirely by those who are better educated and qualified by examination. At both the Council Schools, infant hygiene has been taught to the girls in the upper standards since 1903, and the headmasters continue to speak of the enthusiasm with which it is taught and received.

"This subject will almost certainly soon be taken as routine work in all Council Schools throughout the country ; but the Education Authorities rightly insist on the training of the teachers in this particular subject, as a necessary pre-

liminary to obtaining the best results among the children. They should also insist on practical demonstrations, including such elementary matters as the art and science of washing and clothing children, and object lessons in preparing foods, cleaning food vessels, &c., &c.

"A health missioner is also badly needed to visit and to give practical and sympathetic advice in the homes of the poor, and the one theme that she must never tire of repeating is that the mother's milk is the best food, and that on no grounds except absolute failure of supply should it be supplanted."

The Medical Officer of Health of Sedgley writes :—"I hope the Education Committee of our County Council will speedily introduce the teaching of senior pupils in everyday matters affecting the health, including for senior girls instructions as to infant feeding. The cards issued by this Council, and kindly distributed by the Registrar, as to 'How to Feed your Baby,' have been useful, and are appreciated by the parents."

In commenting upon an infant mortality rate of 193 in the Smallthorne Ward of the Smallthorne Urban District, the Medical Officer of Health writes :—"This is a very high rate, and is a matter requiring serious consideration. The population is almost entirely working class. Many of the mothers go out to work, leaving the children in charge of the neighbours. The great majority of the children are bottle-fed; no care is bestowed on the preservation of the milk used—usually it is kept under conditions most favourable to the development of changes which render it unfit to be the food of children. There is entire ignorance of hygiene, domestic and personal, the children are badly fed, thoughtlessly clothed, kept in ill-ventilated rooms, and generally sleep with their parents. There can be no diminution of this high rate until mothers are taught the proper management and care of their children. The lectures on nursing, given by authority of the County Council, were well attended, and have done a large amount of good, but I would suggest that in addition to these lectures some competent person be appointed to go from house to house instructing mothers in the feeding, nursing, and

clothing their infants, and we might then hope to save many of these lives which are at present sacrificed to ignorance."

The Medical Officer of Health of Uttoxeter Urban District writes under this heading :—" I was very pleased to find the Urban District Committee accepted the offer from the County Council for a course of ' Lectures on Health,' which commenced last October ; I understand they were well attended, and fully appreciated."

The Medical Officer of Health of Eccleshall Rural District states that his experience in general practise does not point to any improvement in the methods of feeding infants, and he expresses the hope that " the time is not far distant when practical hygiene, including the feeding of infants, will form part of the curriculum in our elementary schools."

In commenting upon a rate of 116 in the Walsall Rural District, the Medical Officer of Health writes :—" For this district the rate this year is encouraging, for on noting the rates during the period that I have been Medical Officer it will be seen that the return for this year is the lowest except for the year 1902, and considering the character of this district it compares very favourably with the rates for the other rural districts throughout the county. I hope the diminution of the deaths of infants will be maintained, but we must not be too sanguine on account of the lowness of the rate for one or two years, since we must bear in mind that far fewer deaths were attributable to diarrhœal diseases last year than is usually the case. I hope the practice of giving a leaflet to each person who registers the birth of a child, containing simple but explicit rules for the care and feeding of young infants will be continued, as it is only by educating young mothers in the proper methods of rearing children that in time great saving of infant life will be effected.

" I am of opinion that great benefit would result in such a district as ours if visits from time to time could be made to the homes of the working classes by a lady health inspector, appointed by the County Council, who would give detailed advice on the spot. Such an inspector would be able to deal with a number of sanitary districts, and I believe that before long great benefit would be derived."

The Council will remember that I conducted an enquiry some years ago into the effect of factory labour on the infant mortality. Previous to 1902 I was obliged to classify the towns according to the number of married women workers upon the best information I could obtain, but three years ago the Registrar-General was good enough to supply me with certain figures, specially extracted from the 1901 Census returns, showing the number of married and widowed females engaged in specified occupations in each town, together with the number of females living at various ages. From these figures I have estimated, in the case of each town, the percentage of married and widowed females engaged in work involving absence from home during the day per total females between the ages of 18 and 50. Had it been possible to work out the rates in each case on the married female population only, the percentages would, of course, have been higher, but I had no data to allow of this being done. Again, I am obliged to assume, in the absence of corresponding figures from previous Census returns, that the number of married and widowed outworkers to the female population within the specified age limit was the same throughout the 22 years covered by the infant mortality figures as in the last Census year, an assumption which, I think, is justified by the fact that no change has taken place in the special trades carried on in the various towns during the whole period.

On the new basis, I have classified the towns (artisan only) into three groups, placing in the first group those in which the proportion of married and widowed females engaged in work away from home to total females between 18 and 50 reached, and exceeded 12 per cent.; in the second group, those towns in which the proportion was under 12 per cent. and over 6 per cent.; and in the third, those in which the proportion was under 6 per cent.

In the following table the rates in the different groups of towns are given :—

Class according to percentage of Married and Widowed Workers to Female Population between 18 and 50 years.	No. of Towns.	Total Population, 1901 Census.	Deaths of Infants under 1 year per 1,000 registered births.		
			1881-1890	1891-1900	1901-1905
I.—12% and over	5	132,299	195	212	192
II.—Under 12% and over 6%	13	263,868	165	175	159
III.—Under 6% ...	8	131,508	156	168	147

As a matter of fact the more accurate method of classifying the towns has not caused any appreciable alteration in the relative mortality in the three groups, and I submit that the figures still bear out my contention that, in the absence of any other apparent reason, the excessive mortality in the first group compared with the second and third, and in the second compared with the third, is attributable to the nature of the trades carried on, as affecting the facilities for the employment of women away from home and, as a consequence, the proportion of wholly artificially-fed to entirely or partially breast-fed infants. While I am prepared to admit that the practice of mothers engaging in factory work, and continuing at work practically up to the time their children are born, may, in itself, prejudicially affect the lives of their children, I maintain that the injury arising from the entire deprivation of mother's milk during the early months of the children's lives is far more serious. No doubt the injury largely results from ignorance on the part of those who have the care of infants as to the proper substitute for mother's milk and the importance of the storage of food under cleanly conditions,and until women are instructed in such matters we must look for a continuance of a needlessly high infant mortality all round, but more especially in those centres of population where the nature of the trade carried on leads, indirectly, to an increase in what may be termed the normal proportion of infants who are entirely dependent on artificial feeding.

I have devoted considerable space to the question of the infant mortality of the county, but not more, I think, than the importance of the subject demands. While it is an undoubted fact that sanitation has effected a marked improvement in the public health, it does not appear that much, if any, progress has been made in reducing the death-rate among infants. The fact is, that no amount of energy on the part of sanitary authorities, in the direction of improving the home surroundings of the people, will have the desired effect in the absence of a determined attempt to break down the gross ignorance which prevails regarding the feeding of infants. It is deplorable to think that nearly 2,000 children end their lives annually in this county within a few weeks or months of their birth from no other cause than improper feeding, and this, not because of wilful neglect on the part of parents, but because, from mistaken kindness in most cases, mothers blindly follow an unfortunate tradition, believing that they must know best what is good for their children, and that what the child likes cannot be bad for it.

It would appear that we cannot hope to make much impression on the present race of mothers, but can we not look a little further ahead and endeavour, by means of simple teaching in schools, to instil into the coming race reasonable ideas regarding everyday matters affecting health, including infant feeding, and so lead to a radical change for the better in the future ? As the Council are aware, the County Education Committee have taken the initial step in this direction by instituting training classes for school teachers.

Zymotic Death-Rate.

The death-rate from zymotic diseases, including under this heading, according to the Registrar-General's classification, the seven principal ones—viz., small-pox, measles, scarlatina, diphtheria, fevers, whooping cough, and diarrhœa—is lower this year than last.

In the following table the comparative figures are given for the past seventeen years, together with similar figures for England and Wales, and for the larger towns in England :—

Zymotic Mortality per 1000 of Population.					
	Districts in Administrative County.			England and Wales.	Large towns in England.
	Urban.	Rural.	Urban & Rural combined.		
1889	2·36	1·17	1·99	2·40	2·72
1890	2·06	1·15	1·77	2·05	2·77
1891	2·00	1·36	1·82	1·83	2·41
1892	2·03	1·10	1·77	1·90	2·63
1893	2·41	1·58	2·17	2·47	3·17
1894	1·68	0·97	1·47	1·76	2·43
1895	2·39	1·15	2·04	2·14	2·82
1896	2·71	1·55	2·39	2·18	2·90
1897	2·91	1·57	2·54	2·15	2·87
1898	3·41	1·68	2·97	2·22	2·85
1899	2·54	1·27	2·22	2·21	2·81
1900	3·04	1·89	2·75	2·00	2·50
1901	2·50	1·39	2·21	2·05	2·68
1902	1·63	0·93	1·44	1·64	2·12
1903	1·63	0·86	1·43	1·46	1·89
1904	2·41	1·15	2·14	1·94	2·49
1905	2·00	0·91	1·77	1·52	1·88

The Medical Officer of Health of the Borough of Newcastle, where a zymotic death-rate of 3·75 was recorded, points out that measles and whooping cough gave rise to the high rate, and the Medical Officer of Health of Smallthorne, where the rate was 4·34, states that it is accounted for by a high measles mortality.

Special Zymotic Death-Rate.

Small-pox.—We now appear to have entered upon a period of quiescence as regards this disease, only four cases having been notified during the year—three in Cheadle Rural District, and one in the Rural District of Stoke-on-Trent.

Judging from former experience, we may hope to be practically free from the disease for a few years, but having regard to the inadequate protection afforded by vaccination—owing to re-vaccination not being compulsory, and the imperfect way in which primary vaccination is too often performed—it is inevitable that outbreaks of the disease will occur sooner or later, therefore the costly machinery for dealing with such outbreaks must be maintained.

Regarding the cases in Cheadle Rural District, the Medical Officer of Health writes :—" The first case occurred at Armshead Farm, near Werrington. It appears that the farmer's daughter was a nurse at the Small-pox Hospital at Bagnall, and she evidently brought the infection while on a visit to her parents. Later, another case occurred in this house.

" The house was disinfected, and the infected bedding and clothing was destroyed by fire. The other inmates of the house were re-vaccinated and kept in quarantine for fourteen days. The District Council made suitable compensation for the articles which had to be destroyed. No further spread occurred.

" The next case was notified by telegram on the 21st February, and was removed the same day to Bagnall Small-pox Hospital. This case originated in Holtam's hut, on the new Light Railway Works at Winkhill, and the patient was a navvy employed on the railway. The hut was thoroughly disinfected, and all infected bedding and clothing was destroyed, for which the District Council made compensation. In this hut, there were four other men, a woman, and two children. All the inmates were re-vaccinated and kept isolated, and arrangements were made by the Sanitary Authority for providing them with food. The Railway Contractors deserve great praise for the manner in which they co-operated with the Sanitary Authority in their endeavours to stamp out the disease, and they also very considerately allowed the tenants of the hut in question to live rent free while they were in quarantine for fourteen days. As there were close on 480 men employed on the railway works, all more or less coming into close contact with each other, it was evident that there

was grave risk of a serious outbreak, especially seeing that many of the men were mere 'birds-of-passage,' doing a day's work and then going on the tramp to look for work elsewhere."

Upon careful enquiry it seemed to be established that the infection in the two last cases was contracted outside the county, the first to be attacked being a navvy who had been moving from place to place before obtaining work in the Cheadle district, and who had suffered from the disease in a mild form without its being recognised until he infected his son.

With reference to the case in the Stoke-on-Trent Rural District, on enquiry I find from the Medical Officer of Health that the patient was a single woman, whose brother worked at the Small-pox Hospital and was in the habit of visiting his home at Bagnall where the patient lived. In all probability the infection was conveyed by the brother; thus, unfortunately, three cases arose from inter-communication between the hospital staff and residents in the village.

Measles.—In the Administrative County 511 deaths occurred from measles, as compared with 357 in 1904, equal to a rate per 1,000 of the population of 0·54, as against 0·38. Of these deaths, 459 occurred in the urban districts, or 0·62 per 1,000, and 52 in the rural districts, producing a rate of 0·26 per thousand.

In the following table corresponding figures are given for three quinquennial periods, and for the past two years :—

MEASLES.		Mean for 5 years. 1889-1893.	Mean for 5 years. 1894-1898.	Mean for 5 years. 1899-1903.	1904.	1905.
Urban	Number of Deaths...	281	356	260	316	459
	Rate per 1000.....	0·51	0·59	0·38	0·44	0·62
Rural	Number of Deaths...	68	69	40	41	52
	Rate per 1000.....	0·29	0·30	0·17	0·20	0·26

The Medical Officer of Health of Brierley Hill writes :—"Twelve deaths occurred from this disease. Eleven of the deaths were children under one year of age. So long as the

mothers persist in regarding measles as a very harmless sort of complaint, the disease will have a disastrous result amongst their children. In itself it is not a serious illness ; but as I have frequently stated in my previous reports, unless care be bestowed on the sufferers, especially during the stage of convalescence, a fatal complication, such as broncho-pneumonia, is liable to set in. This does not, however, represent the full extent of mischief wrought by an epidemic. Serious sequelæ, such as phthisis, ear diseases, and eye diseases, are much more common after measles than any other affection, and they point to the necessity for prolonged careful feeding and nursing, long after the period when danger is generally supposed to have passed over. . . . . ."

Later, in the same report, the following remarks appear :— " There is no disputing the fact that the aggregation of young children is frequently followed by an outbreak of infectious disease. How much more certain is this to be the case when you have children from three to five years congregated together day by day in a possibly badly ventilated school. The admission of these babies to school has done much to favour the spread of infectious disease of all kinds. Our object should be to avoid bringing them together under five years of age in order to evade the most infectious and fatal period. By this means a large number of children's lives could be saved, both as regards measles and other communicable diseases.

" The exclusion of children under five years would not prevent measles, but the majority of these would contract the disease at an age when they are better able to stand it.

" It is not true that a child is always and everywhere better off than running at large.

" When the information of an outbreak of measles reaches me from the schools it is because the grant is in danger through the diminishing attendance. Some system of notification from the teachers of schools should receive every encouragement by the Local Education Committee, enjoining that early notification, with the address of the patient, be sent direct to the Medical Officer of Health. This might prevent the closing of the schools. The disease is most catching in the pre-eruptive stage, consequently when there are a large number

of cases at any one time in a school, there is no alternative but to close."

The Medical Officer of Health of Cannock Urban District writes :—" With regard to the prevalence of measles in the various parts of the district, I have pointed out to your Council the danger of infection attending children who go to school at an early age. Statistics go to prove that 60 per cent. of deaths from measles occur during the first two years of age, 75 per cent. in the first three, and upwards of 90 per cent. under five years.

" As I have already stated in my first annual report, infection begins at least three days before the rash appears, and is given off by the breath and mucus from the onset of the first symptoms, possibly even during the stage of incubation, which is usually about 12 days.

" The Council this year unanimously resolved that the resolution fixing the minimum age of admission to schools at four years be altered to five years, and the Committee and Managers were instructed accordingly."

The Medical Officer of Health of Coseley writes :—" It is easy to defend school closure so far as children under five are concerned, but if the movement to exclude these from attendance is generally adopted there is likely to be increased interference with the attendance in older classes, as a good many of them will probably escape having the disease at the most fatal period, but, nevertheless, are likely to have it later. In anticipation of this, and as a most useful method in any case, it would be wise for the Education Authority to have a record kept regarding each scholar, showing the infectious diseases from which each has suffered, so that, by exclusion of those susceptible, epidemics might often be checked without closing the whole school ; as a matter of fact, school closure to be effectual in the case of measles is required to be done almost on the first alarm, and when applied to upper classes would dislocate school work too much. To sum up I advise—

" 1. As long as children under five are taken, to close infant departments immediately a case appears.

" 2. To keep a measles record for each child.

"3. On the appearance of measles in older departments to exclude those who have not already suffered from the disease.

"4. To train teachers to recognise the disease in its early stage.,

"5. By health lectures, handbills, and every other means to impress on mothers the necessity of viewing an 'ordinary cold' with suspicion when measles appears."

The Medical Officer of Health of Darlaston, where the disease seems to have been more than usually prevalent, writes :—" In the absence of notification the proper control of measles becomes anything but an easy matter, and this is increased by ignorance of, or indifference to, its infectious character on the part of parents, who naturally find a difficulty in distinguishing the symptoms of the pre-eruptive stage from those of ordinary catarrh.

"There can be no doubt that children living in over-crowded and insanitary houses, especially if they are poorly nourished, much more readily succumb to the disease than well nourished children in healthy dwellings. In many instances medical advice is not sought until grave symptoms have supervened."

The Medical Officer of Health of Sedgley, where 25 deaths occurred—the largest number during the past ten years—writes :—" There is little doubt that measles is spread to a very great extent by the attendance at school of children in the early infectious period before the rash appears. A death from measles after the age of five is uncommon, and after the age of six it is still less common. Thus it follows that if children could be prevented from catching measles until they are six years of age, the mortality from this disease would lessen, if not quite disappear. At school, children under five are exposed to the risk of measles in large classes, closely aggregated. If these children were not in school the risk of infection would be greatly lessened. For this and other health reasons, as well as for the financial saving in providing fewer school buildings, teachers, and appliances, it seems advisable to discourage the attendance at school of such young children."

The Medical Officer of Health of Smallthorne writes :—"From January to April this disease was prevalent, and I made a special report concerning the outbreak, shewing the means taken to arrest its progress, time during which the schools were closed, and ages of those attacked, which was almost invariably under five, and expressing an opinion that children under five should not be admitted to schools. The death-rate was high, due chiefly to chest complications, pneumonia usually supervening. This disease is infectious before the appearance of the rash, and children are sent to school whilst in the early and infectious stage of the disease. It is most fatal to young children, and is not looked upon by parents with sufficient dread."

An extensive outbreak of measles in the Borough of Smethwick was the subject of a special report to the Local Government Board, from which the following is extracted :—

"An outbreak of measles in the house of a working man, with the environments so well known to all who, like myself, have their sphere of duty in working class communities, jeopardises not only the safety of those in immediate contact with it, but that of those in its vicinity; for do not the other mothers come often with a baby in their arms, and with little children hanging to their skirt, to see the sick child, and pass their opinions as to the nature of the illness, discuss the illness, relate their own personal experiences, and debate the propriety of calling in a doctor; all the while unconsciously inviting the further propagation of the infection, and its general dissemination by allowing their other children to go on attending school, by sending them on errands to shops, or in groups to various works with dinners, by despatching them to the streets to play, by assembling the whole family at meal times in the kitchen with the sick child lying there on the sofa. Can it be wondered then that a measles epidemic should now and then assume under such circumstances large and extensive proportions."

In the Cannock Rural District it appears that a serious outbreak occurred causing 15 deaths.

The disease was also prevalent in Kingswinford Rural District, and the Medical Officer of Health writes :—" A great deal of this mortality is due, no doubt, to the popular idea that measles is a disease of no importance, with the result that mothers are inclined to treat it too lightly, and do not seek medical aid until some serious complication has arisen. In the absence of compulsory notification, we have to rely for information about the prevalence of this disease mainly on the masters of the public schools in the district, and I think it would be well if the headmasters would make a rule of giving the Medical Officer of Health early information of the first cases of measles which come to their notice, and not, as frequently is the case, waiting until so many pupils are affected that the school routine can hardly be carried on. If I had this early information, I am of opinion that it would be well to close the schools almost at once ; that is, of course, if by inquiry and careful observation, the disease shows any tendency to increase. If I can get the early information I have asked for I shall most certainly ask the Council to order the early closing of the schools, and I am firmly of opinion that this will be a right and proper course to take, apart altogether from the view educational authorities may take."

The Medical Officer of Health of Walsall Rural District writes :—" I would again call attention to the fact that measles especially attacks young children, and that the mortality rate decreases as age advances, and also that measles is contagious before the rash appears ; hence it is most undesirable that children should be collected together in schools before they reach the age of five years. I maintain that any knowledge acquired before that age is evanescent in character, and that the mental capacity of the child in after years is rather deteriorated than otherwise by tuition during the very early years of life."

Scarlet Fever.—In the Administrative County, 102 deaths occurred from scarlet fever, as compared with 161 in 1904, equal to a rate per 1,000 of the population of 0·10, as against 0·17. Of these deaths, 77 occurred in the urban districts, or 0·10 per 1,000, and 25 in the rural districts, producing a rate of 0·12 per 1,000. In the following table corres-

ponding figures are given for three quinquennial periods and for the past two years :—

SCARLET FEVER.		Mean for 5 years. 1889-1893.	Mean for 5 years. 1894-1898.	Mean for 5 years. 1899-1903.	1904.	1905.
Urban	Number of Deaths...	124	133	134	136	77
	Rate per 1000.....	0·22	0·22	0·20	0·18	0·10
Rural	Number of Deaths...	40	37	36	25	25
	Rate per 1000.....	0·17	0·16	0·15	0·12	0·12

It will be seen from the above figures that scarlet fever was much less fatal in 1905, especially in the urban districts, than in 1904 and the previous three quinquennial periods.

The Medical Officer of Health of Coseley states that the disease is practically endemic in that district, and that the type of the disease this year and the previous year was more severe.

On the other hand, the Medical Officer of Health of the Borough of Newcastle states that, while some cases were of a severe type, most of the 138 cases which occurred in the borough were of a mild type. Regarding an outbreak which occurred in the autumn, the same Medical Officer of Health writes :—" . . . it was entirely due to infection being conveyed by milk, which was brought into the town from the rural district. The origin of this infection was quickly discovered and very promptly stopped, but the mischief was then done, and many cases resulted from this origin."

Diphtheria and Membranous Croup.—In the Administrative County, 169 deaths occurred from diphtheria and membranous croup, as compared with 203 in 1904, equal to a rate per 1,000 of the population of 0·18, as against 0·22. Of these deaths, 125 occurred in the urban districts, or 0·17 per 1,000, and 44 in the rural districts, producing a rate of 0·22 per 1,000. In the following table corresponding figures are given for three quinquennial periods and for the past two years :—

DIPHTHERIA.		Mean for 5 years. 1889-1893.	Mean for 5 years. 1894-1898.	Mean for† 5 years. 1899-1903.	1904†	1905.†
Urban	Number of Deaths...	28	132	230	175	125
	Rate per 1000.....	0·05	0·22	0·34	0·24	0·17
Rural	Number of Deaths...	21	39	72	28	44
	Rate per 1000.....	0·09	0·17	0·31	0·14	0·22

† Including Membranous Croup.

With reference to the use of antitoxin, the Medical Officer of Health of Biddulph writes :—" Certainly, as has been proved in many districts, the prompt administration of antitoxin has saved many lives, and has robbed the disease of its worst terrors."

The Medical Officer of Health of Brierley Hill writes :—" In March you adopted a resolution authorising me to obtain a proper syringe and a supply of serum, which could be obtained, free of charge, in cases of diphtheria occurring in the households of the poorer members of the community. The local medical practitioners were notified of this offer.

" A sterilized syringe and a supply of antitoxin are kept at my offices, Moor Street, and can be obtained on application by the medical attendant. With this means and the bacteriological examination which can also be obtained free of charge at Mason College, by arrangement with the County Council, we are in a good position as regards combating the disease. The use that has already been made of both these means has been attended with satisfactory results."

The Medical Officer of Health of Brownhills expresses his regret that his Authority have not yet sanctioned the free supply of antitoxin for diphtheria.

The Medical Officer of Health of Cannock Urban District also advocates the free supply of the serum.

The Medical Officer of Health of Coseley writes :—" The supply of antitoxin serum free of charge is now very general, and I hope the Local Government Board will declare the legality of the practice, as I understand that the absence of such a declaration is the reason your Council have not yet seen their way to supply it. It acts as a prophylactic as well as a curative, and is a splendid success."

The Medical Officer of Health of Fenton writes :—" In my monthly report for February last I drew attention to the inadequacy of home isolation as a preventative against the spread of diphtheria, and recommended the allowance of a fee to medical men for the injection of diphtheritic antitoxin in the case of both patients and contacts as a cheaper alternative to the costly method of removal of all cases (willing to go) to the Isolation Hospital. At the October Council meeting a fee of 2s. 6d. for injection of patients, and a fee of 1s. 6d. for the injection of all contacts willing to submit to the operation, was allowed. Since that time to the end of the year 11 patients and 27 contacts have been injected. Of these, one patient died, and one contact injected subsequently contracted the disease. In the case of the contact, 500 units only were injected, and I am informed that the patient who died was dangerously ill before medical aid was sought. It appears that in many of the contacts a small dose only was given, in some cases as little as 250 units. The sanction of this special fee is of too recent a date for any conclusions to be at present drawn as to the relative value of injection of contacts and removal of patients to hospitals."

The Medical Officer of Health of Heath Town writes :—" Your Council have acceded to my request that diphtheria antitoxin should be supplied at the cost of the Council to patients suffering from diphtheria or to those exposed to the infection, but your resolution included restrictions such as will be gathered from the following circular letter sent out to all medical men known to be practising in Heath Town :—

" HEATH TOWN URBAN DISTRICT COUNCIL.

" December, 1905.

" Dear Sir,

" The above Council have requested me to inform you that if in this district you have occasion to employ diphtheria antitoxin in a case of that disease, or to employ that remedy as a prophylactic upon diphtheria 'contacts,' and you believe that the patient or friends are unable to pay for the serum—if you present to the Council an account of the facts of the case, especially dealing with the pecuniary circumstances of the patient or friends, the

Council will, if satisfied that the case is a necessitous one, reimburse you for the cost of the serum; but the Council cannot pay more than the standard rate per thousand units charged by the Jenner Institute for their serum.

"Yours faithfully,

"J. ALFRED CODD.

"While, from a purely sanitary point of view, I should regret that any restriction should be imposed that might limit the use of the serum in appropriate cases, I quite concur in the views of the Council that those who can afford to pay for the serum should not have it supplied out of the rates. I do not think medical men will have any difficulty in practice in distinguishing those cases for which they might make a successful application to your Council for repayment."

In the Borough of Longton it would appear that serum is supplied free, and a fee is paid to the medical attendant for administering it. The Medical Officer of Health writes:—"We were threatened with an epidemic of diphtheria in June, when there were 21 notifications, but by the prompt use of antitoxin by the medical gentlemen in the town, both as a prophylactic and a curative agent, the calamity was averted. During the year, 64 cases were reported, and there were eight deaths, giving a case rate of 12·5. During 1904 there were 107 cases notified, and 11 deaths, giving a case rate of 10·3. The higher case rate this year is due to the fact that four members of one family died from a very virulent form of diphtheria, and they did not receive the antitoxin treatment soon enough."

The Medical Officer of Health of Quarry Bank writes:—"For some reason, at present unknown to me, Quarry Bank is particularly exempt from diphtheria, and I have ceased to store antitoxin, which the Council has supplied gratuitously for use in the district for the past four or five years."

In Rowley Regis both serum and syringes are supplied free to all medical practitioners.

The Medical Officer of Health of Sedgley writes:—"Should occasion arise, I recommend that this Council continue to supply anti-diphtheritic serum to medical men for

poor patients, and hope the Local Government Board will sanction such expenditure. This serum treatment is the best known."

In Smallthorne, where 28 cases were notified, it is said that antitoxin was used in nearly every case with good effect, and the Medical Officer of Health says :—" I would suggest that the serum be supplied at your expense to all applying who cannot afford to buy it for themselves."

The Medical Officer of Health of the Borough of Stoke-on-Trent writes :—" From January 1st to December 31st 62 persons were injected for prophylactic purposes. They had come into contact with 21 cases. None of these injected developed the disease subsequently. The cost to the borough was £4 13s. 6d."

Under this heading, the Medical Officer of Health of Stone Urban District writes :—" The Education Committee of the District Council are very stringent, through their Attendance Officer, in looking up the children who, even for two or three days, are absentees from school, and so parents are sometimes induced to overlook what appear minor ailments and send their children to school, rather than be reprimanded by the officer. This Attendance Officer is very properly firm and zealous in his duties, though attempts are often made to impose upon him by frivolous excuses, yet on the other hand, he is naturally unable to give a medical opinion on the gravity of the illness. The remedy would be for the School Attendance Committee to insist upon having a medical certificate from parents when children are absent, and which certificate should be paid for by the Committee.

" The heavy death-rate from diphtheria gives by no means a correct impression of the real state of things, as I am convinced that a large number of cases remain unnotified, and are only discovered when the disease in some member of the family assumes a more severe type. In all first cases I have suggested that the diagnosis be confirmed by bacteriological proof from Mason's College, Birmingham. I have also urged the use of antitoxin, not only as a therapeutic agent, but also as a prophylactic measure. This suggestion, which had been already carried out by the medical men of the town, has

necessarily entailed considerable expense, which, in the majority of cases, will fall upon them individually (owing to the inability of the parents to repay them), unless your Authority is willing to reimburse the actual cost, as is done by many authorities."

In the Borough of Tamworth, where 17 cases occurred, with only one death, the Medical Officer of Health states that serum treatment was employed.

In Wolstanton Urban District serum is supplied free of charge.

The Medical Officer of Health of Cheadle Rural District writes under this heading :—" Forty-two cases of the disease were notified (an increase of 10 over the preceding year), of whom three died, giving a percentage mortality of 7·1. It is noteworthy that the mortality of this disease has fallen very considerably since the use of the antitoxin serum became general, although it appears probable that the disease is of a milder type than formerly. The District Council might very properly supply the serum free of charge for use in diphtheria, as is now done by many of the Sanitary Authorities in other districts. It is of great importance that the serum should be used early in the disease, and many of the poorer people are not in a position to pay for it.

" The medical men in the district continue to make free use of the opportunity of having the aid of bacteriological examination of doubtful cases of diphtheria, &c., which is carried on at Mason's College, Birmingham, by arrangement with the Staffordshire County Council."

The Medical Officer of Health of Kingswinford Rural District writes :—" Five cases of this disease were notified, three of which terminated fatally. In view of this high mortality, I congratulate the Council on the step they have taken in offering to supply ' antitoxin ' free of charge for use in cases where the people afflicted are unable to afford the expense themselves. I think this is a step in the right direction, and if taken advantage of by the medical men practising in the district should tend to keep down the mortality."

Having regard to the fact that Upper Penn has been sewered to modern disposal works, it is not very satisfactory to read the following in the Medical Officer of Health's report :–

"There were two cases in the Parish of Upper Penn, one clearly imported; the other, a fatal case, was apparently so, but the drainage of the house was far from satisfactory, and had not been connected with the new system. I regret that many other houses have not been connected."

The following extract from the report of the Medical Officer of Health of Uttoxeter Rural District should encourage the Authority to proceed without further delay in the matter of a sewerage and sewage disposal scheme for Rocester:—"The cases of diphtheria were mostly in the Rocester district, and developed into a serious outbreak at the end of the year 1904 and the beginning of 1905. The cause of the prevalence of this disease at Rocester is due principally to the want of a proper system of drainage. . . . . The insanitary condition of the village of Rocester has been the cause of great anxiety for many years. The scheme suggested by Messrs. Willcox & Raikes was approved of by this Council last year, but you have delayed going further into the matter, pending the consideration of a more economical scheme."

I have devoted considerable space to the question of the free supply of antitoxin serum because I thought that by circulating the above information those Authorities who have not yet made such provision will, in view of the favourable comments quoted, hesitate no longer in giving the needful instructions to their officers to initiate the system.

Whooping Cough.—In the Administrative County, 267 deaths occurred from whooping cough, as compared with 387 in 1904, equal to a rate per 1,000 of the population of 0·27, as against 0·42. Of these deaths, 238 occurred in urban districts, or 0·32 per 1,000, and 29 in rural districts, producing a rate of 0·14 per 1,000. In the following table corresponding figures are given for three quinquennial periods and for the past two years:—

WHOOPING COUGH.		Mean for 5 years. 1889-1893.	Mean for 5 years. 1894-1898.	Mean for 5 years. 1899-1903.	1904.	1905.
Urban	Number of deaths....	257	240	223	306	238
	Rate per 1000.....	0·46	0·40	0·33	0·42	0·32
Rural	Number of deaths....	54	54	44	81	29
	Rate per 1000.....	0·23	0·23	0·19	0·41	0·14

The Medical Officer of Health of Cheadle Rural District is of opinion that whooping cough as well as measles should be included among the notifiable diseases, "as it would enable the Sanitary Authority to deal with the first cases."

Concerning school closure as a preventive measure during the prevalence of whooping cough, Medical Officers of Health are by no means agreed, but the opinions expressed in the two following extracts from the reports under review may be taken as representing the views of the majority.

The Medical Officer of Health of Eccleshall Rural District writes :—"I do not think that school closure is any use as a preventative measure to the spread of this disease, and I should not advise it except when the numbers absent on account of it are so great that it is useless carrying on the work of the school, as was the case in Eccleshall."

The Medical Officer of Health of Gnosall Rural District writes :—"In connection with this, I may say that on several occasions I have been consulted by school authorities as to the advisability of closing their schools, but, as I usually find that by the time this disease has well declared itself the majority of those susceptible have been already attacked, and as the duration of the infection is so protracted, I consider that closure of the school is undesirable, so long as it can be carried on with anything like a fair attendance."

Regarding this question, I venture to suggest that a medium course, namely, the early closure of the infant departments only, may occasionally prove to be of service.

Enteric Fever.—This disease, which must be looked upon as entirely preventable, caused 91 deaths, as against 94 in 1904, equal to a rate of 0·09, as compared with 0·10. Of these, 87 occurred in urban and 4 in rural districts, equalling a rate respectively of 0·12 and 0·02. In the following table corresponding figures are given for three quinquennial periods and for the past two years :—

ENTERIC FEVER.		Mean for 5 years. 1889-1893.	Mean for 5 years. 1894-1898.	Mean for 5 years. 1899-1903.	1904.	1905.
Urban	Number of deaths....	98	124	118	86	87
	Rate per 1000.....	0·17	0·20	0·17	0·12	0·12
Rural	Number of deaths....	30	19	22	8	4
	Rate per 1000.....	0·12	0·08	0·09	0·04	0·02

I quote the following from the report of the Medical Officer of Health of Darlaston, as it illustrates very forcibly the need for isolation hospital accommodation for enteric fever cases :—" I have to record a recurrence during the year of enteric fever. The first case was notified in March, and the last in November.

" The outbreak is noteworthy in view of its special incidence in those portions of the Green district comprising Foster Street and Horton Street.

" The intensity of its development in No. 2 Court, Foster Street (which was responsible for no less than 10 cases) is both interesting and instructive, bearing as it does upon the question of personal contact as the chief cause of dissemination.

" The first case (notified on March 5th) occurred in Giles' Square, Horton Street, a locality always more or less unsavoury, and at this time chiefly noted for its general accumulation of filth, to say nothing of the existence of an offensive drain a few feet from the door of the house. This case terminated fatally, and from it the bulk of the cases in Foster Street originated.

"Fifteen days later the disease broke out in 2 Court, Foster Street, the patient being the son of the above, who had frequently visited his mother in Giles' Square, his illness was the signal for the infection of the whole of this area, and also proved fatal; his room was frequently full of well meaning, but ignorant, neighbours, so that by the time his case terminated, most of the inhabitants of the adjoining houses had spent a considerable amount of time in his presence, while after his death the house was indecently full of people who were no doubt prompted by friendly curiosity.

"The next case that came to my notice was that of a woman in Horton Street, who had helped to nurse the Giles' Square case, following this, another developed in Bull Street, a young girl who had also visited the first case. Then followed a series of cases in the other houses of No. 2 Court, one house only enjoying immunity from the disease. Ten cases actually occurred in five houses, ending with three cases in the sixth house, of which one, the mother, proved fatal, she, too, had helped to nurse the first case in this area, and also had paid visits to the other infected houses.

"About 14 days after this a woman living in Cramp Hill was found to have contracted the disease, enquiry eliciting the fact that she had on several occasions visited the above, who proved to be her sister-in-law.

"The outbreak is instructive, inasmuch as it points conclusively to the cause of propagation being promiscuous house-to-house visiting, involving, as it doubtless did, the frequent handling of the patient and bed linen, and the partaking of food without proper precautions as to disinfecting and cleansing the hands."

The following extract from the report of the Medical Officer of Health of Heath Town is not very creditable from the point of view of the sanitary administration of the district:—"There were six cases, three of whom were removed to Wolverhampton General Hospital. Two occurred in a house in Prestwood Road in a very insanitary state, and with very imperfect drainage, which has been repeatedly condemned or adversely reported upon. They had arrived there

from Shropshire, and probably contracted the disease soon after arriving at this house."

As a contrast to this, the following extract from the report of the Medical Officer of Health of Walsall Rural District is refreshing :—" For the first time since I have been Medical Officer not a single case of enteric fever was notified during the year. Cases of this disease a few years ago were constantly recurring in the poorer parts of Rushall and Pelsall, and I attribute its entire absence for the past two years to the much improved state in sanitation ; foul-smelling old-fashioned privies in many cases in close proximity to the back doors of the dwellings have been replaced by cleanly water-closets, and the inhabitants are constantly being persuaded to give notice to the scavenging contractor to remove the refuse which is collected in the dust-bins."

Diarrhœa.—In the Administrative County, 512 deaths occurred from diarrhœa, as compared with 758 in 1904, equal to a rate of 0·54, as compared with 0·82. Of these, 485 occurred in urban, and 27 in rural districts, equalling a rate respectively of 0·66 and 0·13. In the following table corresponding figures are given for three quinquennial periods and for the past two years :—

DIARRHŒA.		Mean for 5 years. 1889-1893.	Mean for 5 years. 1894-1898.	Mean for 5 years. 1899-1903.	1904.	1905.
Urban	Number of deaths...	405	581	569	713*	485†
	Rate per 1000.....	0·73	0·97	0·84	0·98	0·66
Rural	Number of deaths...	89	93	81	45	27
	Rate per 1000.....	0·38	0·41	0·35	0·22	0·13

* Including 34 deaths from "enteritis."
† " 9 " " "

It will be seen that the mortality this year compares favourably with that of 1904, and is below the means for the three previous quinquennial periods. The fluctuation in the mortality from diarrhœa from year to year is attributable to varying climatic conditions ; at the same time, it must be remembered that when such conditions are unfavourable they are operative only in localities where defective sanitary surroundings are met with.

The Medical Officer of Health of Quarry Bank writes :—"Not a single death is recorded as having been due to diarrhœa, and only one to simple enteritis. This is, so far as my knowledge serves, a record for your district, and I am at a loss to account for it. I wish it could be justly attributed to the improved sanitary condition, which I have advocated year by year; but this cannot be, as long as the uncovered and leaking ashpits are still with us."

Under this heading, the Medical Officer of Health of Rowley Regis calls attention to the effect of the artificial feeding of infants in increasing the mortality, and states that he fears the practice is on the increase.

The Medical Officer of Health of Willenhall writes :—"The deaths from diarrhœa were less numerous than in any year since 1872, beyond which I have no record. The main cause of this was no doubt the coolness of August and September, making it difficult for the micro-organism, which produces it in its fatal form, to develop in polluted soil surrounding dwellings. I hope another cause has been the substitution, in considerable numbers, of water-closets for privy cesspits."

Cholera.—No mention is made of this disease in any of the reports under review.

Erysipelas.—Little reference is made to this disease in any of the reports.

Puerperal Fever.—In the Administrative County, 30 deaths were attributed to puerperal fever, as against 32 in 1904. In only a few of the reports is any special reference made to the circumstances attending the cases.

Although, I fear, one may not look for much improvement for a few years to come, as the result of the administration of the recent Midwives Act, gradually, as the present stamp of midwife is replaced by trained women, through the operation of that Act, an improvement will no doubt become apparent, and deaths from this entirely preventable disease will ultimately, it is to be hoped, be few and far between.

The Medical Officer of Health of Cannock Urban District, where no less than 10 cases of this disease were notified, particulars of which are given, writes :—" I am pleased to be able to state that certificated midwives are doing their best to conform to the written and personal instruction given them by the County Midwives' Inspector."

Under this heading, having referred to the systematic visits of the Midwives' Inspector for that part of the county, the Medical Officer of Health of Tipton Urban District writes :—" There is a marked improvement in the general conditions of the parturient woman and her surroundings, and I think that in time, when properly trained and certificated midwives will supersede the present registered midwives, who have had no special training, puerperal diseases will disappear altogether as an item in our list of preventable diseases."

Influenza.—It would appear from the reports under review that influenza again occurred in most parts of the county, and that the disease was attended with bronchitis and pneumonia in a good many cases.

Diseases of the Respiratory Organs.—Under this heading, which does not include phthisis, 2,760 deaths occurred, as compared with 2,809 in 1904. None of the reports contain any remarks regarding these diseases which call for special reference.

Phthisis.—In many of the reports considerable prominence is given to the question of the causation and prevention of phthisis, from which disease no fewer than 774 deaths have resulted during the year.

The Medical Officer of Health of Amblecote states that the Sanitary Inspector meets with no difficulty in disinfecting rooms after deaths from phthisis.

In Biddulph, where voluntary notification is in operation, the Medical Officer of Health states that only one case has been notified in five years, but that whether this arises from active opposition or from indifference and forgetfulness he is not prepared to say. He advocates compulsory notification, and says :—" It will probably not be disputed that the

Sanitary Authority is the proper body to carry out preventive measures. It only remains to point out that in dealing with a disease, the first information required (and absolutely necessary) is to know where cases exist. And therefore it seems clear that if the notifications cannot be obtained voluntarily, a demand for compulsory notification will be the natural sequel and conclusion "

The Medical Officer of Health of Brierley Hill writes :— " When a death from pulmonary phthisis occurs, it is now our practice to fumigate the premises. The Sanitary Inspector informs me he has no difficulty about this. This is of some advantage for thcse who have to continue to live on in the same bedroom, or for new tenants, but long before the case reaches that final stage, there are many ways by which the disease is disseminated, and over which one has no control, except by an appeal to the sufferers themselves, and that I find is resented, simply because they do not appreciate the importance of the measures they are asked to adopt.

" It is a difficult question, but if any real good is to be done by sanitary officials they must know where the cases are to be found in their early stages. Counsels of perfection are absolutely useless in sanitary work ; we must have some control if we are to do any good. Some system of notification is necessary. Voluntary notification is perhaps most advisable.

" I shall be glad if the Council will consider the advisability of offering the usual notification fee for say a period of two or three years. At a very little cost I should be able to judge whether any real good can be done. There would be very little, if any, interference with the patients, excepting perhaps amongst the poorer members of the community. I think you would find that the assistance we should be able to give a good many of the sufferers would be much appreciated."

The Medical Officer of Health of Cannock Urban District writes :—" I believe compulsory notification would be a useful measure, as it would enable us to visit the homes of the patients and impress upon them the necessary value of fresh air in the way of open windows and chimneys, and also see

to the proper disposal of sputum and disinfection of rooms in fatal cases, or after removal."

The Medical Officer of Health of Coseley writes :—" As I before pointed out, the National Society for the Prevention of Consumption issue a leaflet which it would be wise to distribute to suitable persons. I would also suggest that your Council should encourage the notification of phthisis, and the systematic disinfection of houses where a death has resulted should be carried out. The average consumptive in this district is not in a position to obtain proper treatment at the onset of the disease, and most of those who have been breadwinners eventually become paupers. Sanatoria are required to deal in a scientific manner with these people. Many of them might be rescued, and they would be taught the means of treatment and prevention of the spread of the disease."

The Medical Officer of Health of Leek Urban District writes :—" Phthisis is now generally considered to be a dirt or filth disease, and I feel sure that if habits of cleanliness were more frequently practised, together with the admission of plenty of fresh air, especially through the open bedroom windows during hours of sleep, the number of cases of this terrible disease would rapidly diminish.

" The 'open air' treatment is simply 'ventilation' treatment, and it is far easier to prevent than to cure, therefore I urge free ventilation of all rooms, and especially of bedrooms in which such a large proportion of our time is spent.

" I am pleased to report that since the commencement of the house-to-house inspection by the inspector no less than 249 bedrooms have been properly ventilated, provided always that people will recognise the fact that a window is made to open. There is much to be said in favour of the adoption of windows which cannot be completely closed. If free ventilation and cleanliness were more generally practised, we should have fewer and fewer cases of phthisis, and less money would be required from the rates to build and keep up sanatoria for the treatment of consumptives. If preventive measures are ignored, sanatoria are bound to be required, and it seems to me such a foolish policy and waste of money to begin at the wrong end of the business.

"The phthisis notification post cards from the Registrar to the Sanitary Inspector have been of great service in supplying early information, enabling disinfection to be carried out in every case without delay. I am glad to add that no opposition to this procedure is encountered."

The Medical Officer of Health of Quarry Bank writes :—"I learn from the Sanitary Inspector that on calling, as instructed by me, to offer to disinfect the bedrooms occupied by persons who have died of consumption, that he is occasionally refused. If it could only be brought home to members of phthisical families how infectious this disease often is, I think they would more often ask for disinfection as a favour. A series of cases which I have recently attended, not in your district, will illustrate what I mean. About eighteen months ago I was attending a married man with this disease. I warned his wife of the risk of infection, which, however, in their small house was hard to avoid. The husband died, and a few months after his wife came to me with the disease fairly advanced. Being very poor, she was compelled to live with her sister, where she died, and within a few weeks of her death, one of her sister's children died of the disease, and another with tubercular meningitis, a disease entirely due to the same kind of infection. That this was clearly an instance of infection is shewn by the fact that the wife's relations were never consumptive, and that the two children had been quite healthy until their aunt (the patient) came to live with them. This is an extreme case of what medical men are always meeting with, where two or more members of the same family, or occupants of the same house, are taken with the disease at intervals of more or less duration, and we hold that after the death of a patient, and as many times before as is convenient, the house should be thoroughly disinfected, and that the patient should be taught to regard himself as, to some extent, a danger to others, and to dispose of his expectoration (the chief source of danger) by fire. The old-fashioned habit of spitting into the fire, although not conformable to modern ideas of æsthetics, has much to commend itself ; and as a substitute, paper, old rag, and vessels that can be boiled should be used instead of handkerchiefs. The

principal use of the sanatoria which are being built, and to which every authority in charge of the public health should give full countenance and free support, is to educate the few patients who gain admission in these and kindred matters, so that when they leave they shall act as object lessons and missionaries to those who are not able to gain admission."

In the Borough of Smethwick, where the voluntary notification of phthisis is in force, the Medical Officer of Health has received 13 notifications this year from medical practitioners. He writes :—" After a death from phthisis a letter, signed by the Medical Officer of Health, is forwarded to the head of the family recommending the disinfection of the rooms occupied by the patient, and this disinfection has been carried out."

The Medical Officer of Health of the Borough of Stafford writes :—" It is gratifying to be able to report for the second year in succession the lowest rate yet recorded for phthisis. Only 25 deaths were registered, giving a rate of 1·17 per 1,000, compared with 1·55 for the previous ten years. As I pointed out last year, the tendency has been in recent years for the mortality from phthisis to diminish, and I hope this may be looked upon as in some measure due to the efforts that have been made lately to impress upon the public the importance of having pure air and healthy surroundings in which to live and work."

Zymotic Disease Prevention.

Isolation and Disinfection.—In most of the reports, both for urban and rural districts, this question is very fully dealt with.

In the table at the end of this report, headed " Result of the Working of the Compulsory Notification of Infectious Diseases Act," figures are given showing to what extent isolation hospitals are made use of in districts where they exist. It will be noticed that the use made of them varies very considerably, and in most cases it is evident that they can be of little practical value in curtailing epidemics—the chief purpose for which they are intended.

The percentage of infectious cases isolated in urban districts where hospitals are available and have been available during the year varies very much—from *nil* in Amblecote, Audley, Brownhills, Cannock, Darlaston, Rowley Regis, Sedgley, Smethwick, Wednesbury, and Willenhall (Urban), to 100 in Lichfield, and 81·3 Leek (Urban), and 91·1 in Seisdon Rural District.

It is satisfactory to be able to record that the hospitals for dealing with small-pox cases in the joint populous areas in the north and south of the county are now accomplished facts, both institutions, which are fully equipped, having been formally opened during the year. Whether, now that small-pox may be said to have been provided for, the Authorities of districts where adequate provision has not yet been made for isolating general infectious cases will now be prepared to supply that want remains to be seen, and it is the intention of the Sanitary Committee of the County Council to re-open that question.

In view, therefore, of the anticipated revival of interest in this question, I propose to quote pretty fully from the reports under review as to the opinions of the District Medical Officers of Health upon this important subject.

In dealing with scarlet fever in his district, the Medical Officer of Health of Audley writes :—" Sixty-six cases of scarlet fever were notified during the year. About one-half of the cases occurred as an epidemic during September and October. The remaining cases were scattered over the whole of the rest of the year. During October, four children were attacked with the disease in a small cottage, and at the same time the mother gave birth to another child. In order to avoid any risk of septicæmia to the mother, I had her removed to a house some distance away, where she was provided with everything that she required. A nurse was placed in charge of the children. Both mother and children recovered satisfactorily. This case points out very strongly the necessity for an isolation hospital, where scarlet fever could be both isolated and treated."

In Bilston a new hospital has been erected in the form of a wood-lined iron building, the walls of which are lined throughout with a double thickness of felt. The building is erected on a disused pit-bank, six acres having been acquired for the purpose, of which three acres are enclosed and form the actual site. The hospital is heated by ventilating stoves, lighted by electricity, and the Bilston public water-supply is laid on. The ward accommodation consists of two main wards, containing 14 and 10 beds respectively, and there is an observation block in addition. As regards the cost, the Medical Officer of Health writes :—" The total cost of the hospital and buildings will amount to about £2,600, or £108 per bed, exclusive of the cost of the land. The mean cost of brick-built structures is about £250 per bed, but the cost of site makes a very material difference in the cost of carrying out a hospital. In this instance the cost of six acres of land, including enfranchisement, was £428, but only three acres have been appropriated for hospital purposes. Assuming that the whole cost of the land is borne by the hospital, the expenditure will amount to about £3,000, or £125 per bed."

With reference to the isolation of small-pox cases, the Medical Officer of Health of Cannock Urban District writes :—" The present hospital being altogether unsuitable, the further provision of a permanent small-pox hospital has been receiving the attention of a special committee appointed by the Urban and Rural District Councils. A permanent site will shortly be decided upon."

Under this heading, the Medical Officer of Health of Coseley writes :—" As I have before pointed out, these are impracticable in the small houses in the district, and the provision of means of isolation for general infectious diseases, chiefly enteric fever, scarlet fever, and diphtheria, together with a steam disinfector, should engage your immediate attention. During the latter half of the year the Inspector has used a Mackenzie spray for disinfection of houses and schools."

The Medical Officer of Health of Darlaston writes :—" As the question of hospital accommodation for this district for diseases other than small-pox will shortly come up for dis-

cussion, I may say that we have a building which, with a little judicious expenditure, could be made quite acceptable for the purpose.

"It is to be hoped that any scheme will include a new disinfecting apparatus, as the one we possess is obsolete in the extreme."

The Medical Officer of Health of Heath Town condemns the present hospital accommodation, and hopes that a joint scheme with neighbouring districts may ultimately be found to be possible; he also urges the need of a steam disinfecting apparatus.

With reference to the isolation hospital, the Medical Officer of Health of the Borough of Newcastle writes:—"There is some risk and trouble in the present method of discharging patients owing to the want of a proper discharging block, and when all three of the pavilions are in use, this is greatly increased.

"We urgently require a new and proper ambulance, and if in the future cases of enteric fever are to be isolated and treated at the hospital it will be imperative that we have a suitable ambulance to remove these cases in."

With reference to a disinfecting apparatus, the Medical Officer of Health of Rugeley writes:—"I have again to remark that nothing of the kind has yet been provided for the disinfection of clothing, bedding, etc. Without means of either isolating the patient or disinfecting the clothing and bedding, a medical officer has a very small chance of effectually coping with infectious disease, and I would again urge the District Council to consider the matter, with a view to providing a suitable steam disinfector."

The same Medical Officer of Health also writes regarding isolation hospital accommodation, as follows:—"The dwellings of the working classes in this district are very unsuitable for the effective isolation of infectious cases, few of them having more than two bedrooms, and although every effort is made, and in some cases effectually, to prevent the spread of disease to other members of the household, in many in-

stances it is practically impossible to do so. The district possesses a small isolation hospital for eight cases of small-pox only, but none exists for other forms of infectious disease, and I should be glad if the County Council would come to some determination in the matter of the proposed isolation areas. Ten years have elapsed since the question was first raised, and the County Medical Officer, in his last annual report remarks that the question of the formation of areas under the Isolation Hospital Acts had to give way to the more pressing question of providing for the isolation of small-pox cases, and adds ' that now that a quiet time may reasonably be looked for as regards small-pox outbreaks, the Sanitary Committee will no doubt consider it expedient to again take up the interrupted negotiations with the various authorities of districts where adequate provision has not been made for dealing with cases of other infectious diseases, with the view of efficient hospitals being provided for such cases also.' Another year has passed, but I am not aware that any further notice has been taken of the matter. Perhaps this year the County Council will find time to consider it, and give this district, which was the first to apply for powers to form an isolation area, its first consideration, or at any rate tell us whether we are still to expect that the scheme will be carried out, or shift for ourselves."

In commenting upon scarlet fever in his district, the Medical Officer of Health of Sedgley writes :—" Fortunately, the disease was of a mild type, as it has been for the past six years. It may, however, at any time become more malignant, and we may expect in the near future a County Council scheme for this and kindred diseases, by which an isolation hospital will be provided, for isolation and trained nursing are impossible in the houses of the working classes. There can be no doubt that economy and efficiency can best be secured by combination with neighbouring authorities, and it is to be hoped that the financial burden will be lightened by combining your district with other larger districts. It would probably lessen expense were cases of typhoid fever treated in the general hospitals in the district, as is done in some places. In this way only scarlet fever and diphtheria cases would require to be provided for."

The Medical Officer of Health of Short Heath writes :—" Four of the cases of scarlet fever were contracted from a domestic servant who came home ill from service in Burslem. She was found to be ' peeling ' heavily after the others had been taken ill. Stringent instructions were given as to isolation, and it is believed no further cases were contracted from them. Two boys shortly after returning from Yorkshire were seized with the ailment. They lived in a small house where eatables were sold, usually by their mother. Advice was given that whoever nursed the children should have nothing to do with the shop ; but it is well known how difficult it is in such cases to secure compliance. These are cases which illustrate what would be the value of an isolation hospital, a matter altogether apart from the compulsory isolation of nearly every case of scarlet fever. Another case was in the home of a teacher ; and by the light of subsequent events was not unlikely contracted from another teacher in the same school, who did not live in Short Heath. At any rate, scarlet fever was certified subsequently at the home of the second teacher in an adjacent town, and there are good grounds for believing that the case certified was not the first in the house. Both teachers were excluded from school on my advice, and one of them is still absent."

The Medical Officer of Health of Smallthorne writes :—" During the year I made a report on isolation and disinfection in the district, pointing out how difficult it was to isolate thoroughly, and how it was impossible, with the means we possess, to disinfect clothing, &c., satisfactorily. At the present time we have no hospital accommodation and no disinfecting apparatus, but I am informed that negotiations are in progress for joining the Burslem Hospital. The sooner these negotiations are completed the better."

The Medical Officer of Health of the Borough of Smethwick writes :—" On the 4th December the South Staffordshire Joint Small-pox Hospital was opened, and thus there was no further necessity for reserving the Holly Lane Hospital for small-pox patients. In July an enquiry was held by the Inspector of the Local Government Board, in response to a request by the Town Council, for sanction to borrow money

to erect in Holly Lane, on the site of the present hospital, an isolation hospital for the reception of patients suffering from scarlet fever, typhoid fever, and diphtheria. With regard to this, an arrangement has been made between the Smethwick Corporation and the Oldbury District Council to utilize these provisions in common. A joint committee, chosen from each of these bodies, has been formed, of which Mr. Alderman Bowden is chairman. Plans for the hospital have been submitted to, and approved of by, the Local Government Board, and steps have been taken to advertise for tenders for the erection of the hospital at an early date. The Local Government Board have sanctioned the borrowing of the money required. It will be a source of universal satisfaction to know that no time has been lost in making arrangements for the erection of the hospital, the want of it having been so long felt. A very considerable amount of domestic inconvenience, of interference with work and school attendance will be removed, and the danger to the public health, occasioned by the home nursing of patients suffering from these infectious diseases will be got rid of, and it is to be hoped that under the very excellent hygienic conditions which will be provided for in the new hospital the comfort and welfare of the patients will be enhanced."

The Medical Officer of Health of Stone Urban District writes :—" The Conjoint Hospital Board have purchased and obtained possession of 19 acres of land suitable for building a new hospital upon, and architects in the district have been invited to send in plans for a proper isolation hospital, to contain 23 beds, in accordance with the County Council's requirements, and which it is hoped will be commenced after the necessary Local Government Board enquiry has been held."

Regarding the isolation hospital accommodation at Tipton, the Medical Officer of Health writes :—" The great want in the hospital is for separate accommodation for separate diseases. At a comparatively small cost this can be readily carried out, and probably in a short time will be done. It has been necessary to have cases of scarlet fever and of typhoid fever under treatment at the same time ; one large ward is

kept for each disease. When children only are under treatment we have no difficulty, but with adults of different sex the difficulty of separation arises. This is, however, receiving the attention of the Hospital Committee, who are considering a method for so far increasing the accommodation as to allow of 31 beds being available, *i.e.*, one bed for every 1,000 inhabitants, and so to fulfil any reasonable requirements of the County Council."

In discussing an outbreak of scarlet fever in Willenhall, the Medical Officer of Health writes :—" In several of these cases an isolation hospital would have added to the security of the public."

The Medical Officer of Health of Wolstanton writes :—" The Bradwell Sanatorium remains in the same unsatisfactory state that I reported last year, and 35 cases have been refused admission on account of want of room. Others have not been able to be removed until fresh cases had broken out in the house, thus leading to a very much greater number of cases of infectious diseases occurring in the district than would otherwise have taken place.

" The new Burslem Infectious Diseases Hospital will, however, soon be opened, and as Tunstall will possibly join Burslem, there is considerable hope of a great improvement in the available accommodation at the Bradwell Sanatorium for this district during the present year."

The Medical Officer of Health of Blore Heath Rural District states that should small-pox cases occur a hospital is now available at Whitchurch.

As regards Cannock Rural District, it appears that a sub-committee is now considering the question of providing improved accommodation for small-pox cases.

In Cheadle Rural District, in order to comply with the County Council requirements, and thus obtain a grant from the county funds, the Authority have decided to carry out certain suggested improvements, as follows :—(*a*) The erection of an efficient disinfecting apparatus ; (*b*) the provision of a discharging block ; (*c*) the erection of a new mortuary, the

place now used for that purpose to be utilized as part of the space required for the disinfector; and (*d*) the alteration of the present ambulance so as to render it more suitable for its purpose.

The Medical Officer of Health of Uttoxeter Rural District writes :—" There is still no accommodation for the reception of small-pox patients, and I have no available means of isolating such cases."

Vaccination.—It would again appear from many of the reports under review that the last Vaccination Act has been instrumental in increasing the number of vaccinated children, and if one could be satisfied that all these were efficiently vaccinated, a considerable advance in this department of public health might be recorded. I fear, however, that in many districts the operation is still very inefficiently performed, owing to what one must characterise as dishonesty on the part of certain practitioners. The proportion of such cases, however, is probably not greater than formerly, and, on the whole, it must be admitted that the Act has served a good purpose. At the same time, it is much to be desired that some guarantee should be enforced which would ensure greater efficiency when the operation is performed by private practitioners, and it is to be hoped that when the Legislature again deals with this question, re-vaccination will also be made compulsory.

In the report of the Medical Officer of Health of Cannock Urban District, the following quotation from notes supplied to him by the Vaccination Officer appears :—" For the year ending June 30th, 1905, there are no cases of default in the district, all have been accounted for. There is no general objection to vaccination, only one person being summoned. There are only a few applications for certificates of conscientious objection. . . . . ."

The Medical Officer of Health of Rowley Regis writes :—" The one-pock system of vaccination still largely prevails, especially in the Old Hill and Cradley Heath Wards. In other respects the returns are satisfactory. Conscientious objec-

tions are rare (five having applied for exemption in the last three years), whilst the number of children vaccinated by request of parents before the age of four months is attained is still increasing."

The Medical Officer of Health of Rugeley writes :—" In private practice I find that it is not always usual to make four scarifications, but sometimes three or two, and occasionally even one is considered sufficient. This I consider deplorable, as it suggests an intention to gratify the ignorant or selfish sentiments of parents at the risk of the child and the public health. Last year, when small-pox was present in the district and neighbourhood, a large number of persons were re-vaccinated. This year, when the scare is over, the necessity is forgotten, and none, so far as I know, have been done. I understand that calf lymph is invariably used in private practice."

The Medical Officer of Health of Sedgley gives the following figures from a return supplied to him by the Vaccination Officer :—

Number of births registered	566
Successfully vaccinated	515
Had small-pox	0
Conscientious objectors	4
Died unvaccinated..	44
Postponed by medical certificate..	1
Removal to places unknown	1
Not accounted for	0
Insusceptible to vaccination	1

In commenting upon these figures, the Medical Officer says :—" This very satisfactory return for 1904 shows that all cases are accounted for by successful vaccination, by death before vaccination, by removal from district, and that only one case was postponed. The number of conscientious objectors is only four, the same as 1903."

The Medical Officer of Health of Cannock Rural District writes :—" The Guardians faithfully carry out the Act ; the Vaccination Officers are alert and energetic ; the number of conscientious objectors is small ; and the district is fairly protected by vaccination."

The Medical Officer of Health of Seisdon Rural District writes :—" Many are still vaccinated only in one place, which is of little value, and brings discredit on vaccination as a preventive."

Insanitary Dwellings and Overcrowding.

It would appear from some of the reports that progress is being made in the direction of improved dwellings and reducing overcrowding, but, on the other hand, in some of the districts there is evidently room for more energetic action in this direction on the part of Authorities.

In Biddulph it appears that overcrowding still exists " because the population increases faster than the supply of new cottages."

The Medical Officer of Health of Darlaston writes :—" While the increasing number year by year of new houses erected in the district gives cause for satisfaction, there exists at the same time much old property that calls for remedial measures.

" The dominating feature in those of the worst type is dampness, which is due to the invariable absence of a damp course and spouting, as well as to general defects in the roof or other parts of the house.

" Many are built on the back-to-back principle, and have windows so small as to effectually prevent the free admission of light and air.

" Twelve cases of overcrowding are noticed as having been discovered and remedied under the Public Health Act, 1875.

" The state of much of this old property calls for periodical house-to-house inspection, a procedure that would doubtless lead to the discovering of additional cases of overcrowding as well as the remedying of many structural defects."

The Medical Officer of Health of Fenton writes :—" The bulk of the houses in the district are two storeys in height, and consist of two to three living rooms on the ground floor, and the same number of bedrooms upstairs. Those built since the passing of the bye-laws present a general appearance of cleanliness and comfort, and it is doubtful if the working classes are anywhere better housed. Some of the older houses, however, are defective as regards cubic space of living rooms, window area, sanitary conveniences, and general repair. The windows in many cases are not constructed to open, and in some even of the largest houses there is no damp course. . . . . .

" Our Sanitary Inspector has, since the beginning of the year 1904, been engaged in compiling a book containing the sanitary record of every house in the district, arranged in tabular form. This is now completed, and will form a reference book of inestimable value."

The Medical Officer of Health of Leek Urban District writes :—" The house accommodation is fairly good, both as regards its adequacy and fitness for habitation. Two cases of overcrowding have been investigated and reported on, and after notices had been served, the condition was brought within legal limits, prosecution being rendered unnecessary.

" I fear there are many cases best described as borderland cases, which I should heartily rejoice to get rid of, but the dearth of houses having good-sized rooms at a low rent makes it impossible, for wages are always comparatively low in many branches of silk manufacture, and especially low now that the trade is bad and many workers are making short time.

" The injurious effects in these borderland cases would be largely counteracted if the people would learn to open the windows more freely, and to unstop the chimneys, which are stuffed with bags of shavings, etc., or blocked by boards, which are frequently papered over to look clean and pretty. These conditions, which plainly mean want of fresh air, and accumulation of bad air in the bedrooms, have an important bearing on our infant mortality, for infants are most sus-

ceptible to the poisonous atmosphere, and either die in the early months, or surviving these grow up poor miserable undersized weaklings.

"A sufficiency of open space about the houses is much more apparent in the more recently erected buildings, and their surroundings are clean. There are only 14 back-to-back houses in the whole district, 10 of these have two large bedrooms with good windows, and are provided with a separate water-closet each."

The Medical Officer of Health of the Borough of Newcastle writes :—" During the year 21 dwellings were condemned as being unfit for human habitation. During the last five years much good work has been done in the closing and demolition of insanitary property.

" The Lower Green Improvement Scheme at last has become an accomplished fact, and there is no doubt that this is one of the greatest improvements that has been brought about in the Borough for many years. The character of this district looks like being greatly altered and improved ; the new street and the class of new houses already been built are most pleasing to contemplate, particularly when one recalls the terrible conditions which previously existed in this particular neighbourhood."

The Medical Officer of Health of Rowley Regis states that overcrowding is less prevalent, building operations during the last two years having improved matters in that respect.

It would seem that some work is being done in the Borough of Stoke-on-Trent in disconnecting the down-spouts from the drains, but the following paragraph, which again calls attention to these and other serious drainage defects, should lead to some definite steps being taken, with the view of forthwith remedying all such dangerous nuisances :—" As a rule, in the larger houses, and where water-closets are situated in the houses, the drains are ventilated by a pipe continued upwards from the soil pipe, but only in houses specially re-drained within the last few years are the drains disconnected by a trap and inspecting chamber from the sewer. In smaller

houses, with the water-closets outside, there is no disconnection of drains from sewers, and in those that have the drains ventilated, it is done by means of the rain-water fall pipes."

Embodied in the report of the Medical Officer of Health of the Borough of Wednesbury is an extract from a special report which he presented as the outcome of an inspection early in the year with respect to the question of yard paving, especially in the case of courts in the poorer parts of the town. He strongly urges the paving of all such courts, and in referring to the special report in question, he says :—" This matter, I understand, was considered by the Council and certain enquiries as to cost were suggested. Nothing further, however, had been done at the end of the year, but again I would strongly advise that the question should receive your serious attention. The danger from polluted courts and yards which are unpaved is a very real one, and I greatly hope that so grave a menace to the health of the town may be removed as the result of your action."

Excrement and Refuse Disposal.

I have called attention in my preliminary remarks to the satisfactory advance which has taken place in the system of dealing with the excrement and refuse of districts. This subject has received considerable attention in my previous reports, but as it is one of such supreme importance from a health point of view, I propose to notice, very fully, the paragraphs in the reports under review which deal with it.

The Medical Officer of Health of Brierley Hill writes :—" This work is still done by contract, but it is undoubtedly better done than hitherto. It is not removed as often as I think it should be, but judging from the complaints made to me, which during the past year have been practically nil, there is evidently much more attention being paid to the ordinary requests for removal.

" In the concluding paragraph in his report Mr. Yorke mentions ' The Cottage Street Tip.' This tip is objectionable on account of its magnitude and position. How to dispose of the refuse so as not to create a nuisance is a problem which

always demands serious attention. Suitable sites are getting scarce, but I certainly think this one ought to be abandoned. Apart from the question of cost, from a health point of view this kind of refuse should not be deposited near dwellings. It has been calculated that the refuse from towns contains nearly 30 per cent. of putrescible organic matter. It is most putrescible in summer, when putrefaction is most active, green stuff more plentiful, and the protection of dry ashes less abundant. Disinfection, which is most difficult, only constitutes a palliative, the cost of which is probably not justified by the results obtained.

"It would be far better, from a public health point of view, to set about the establishment of a good destructor, than to continue the use of this tip. There are many objectionable things deposited there, besides house refuse, and it seems to be impossible to prevent it."

The paragraph referred to having reference to the Cottage Street Tip, is as follows :—"I think you will be running a grave risk if you allow the place to be used for this purpose much longer. I suggest an effort should be made to secure a more suitable place further removed from the town where the whole of the town's refuse could be deposited with safety."

The Medical Officer of Health of Darlaston writes :—"The continued existence of the obsolete privy midden constitutes our greatest bane at the present time, and does more than anything else to neutralize our efforts at real sanitary reform.

"Although each year sees substantial progress in the work of privy conversion, there is still a large number of these, many of which are very offensive, remaining to be dealt with.

"The type unfortunately in vogue is one which entirely defeats the original object of this form of the conservancy system, for it fails to admit of that proper admixture of ashes and excreta which the system is intended to obtain. This is only possible where both privy and midden are constructed strictly according to Model Bye-law Regulations, instead, we have offensive refuse stored, mostly in large, deep, un-

covered ashpits, the ashes being high and dry, while more or less liquid matter is left behind to saturate the sub-soil and foster disease.

"Under such conditions it is obvious that removal of the contents becomes a most imperfect and unsatisfactory process, and really amounts to so much labour lost.

"One hundred and forty-two house connections have been made during the year, making, up to the present time, 2,778 drained into the main sewer, 50 water-closets have been substituted for privies, giving the total of 750 water-closets now in existence, and there are in addition 38 now in course of construction which, when completed, as they will be within a month, brings the number up to 788. Seventy new houses are being built, which are also to be supplied with the same type of convenience.

"The Inspector reports the re-construction of 46 privies and ashpits, and although they are covered in and made smaller, I am of opinion that it would be much better in future to replace them by W.C.'s than attempt to salve our conscience by the merely palliative step of perpetuating the old system in only a little less objectionable form.

"As one or two instances have occurred where reconstruction or alteration has not been carried out exactly in accordance with the Council's instructions, it is advisable for the work to be frequently inspected and stopped at once if found to be in any way irregular. By allowing such cases to pass unnoticed a bad precedent is established, which might influence any other property owners when called upon to do similar work in future."

The Medical Officer of Health of Leek Urban District writes :—"The disposal of refuse consists in its being emptied on the 'tip.' I have long advocated a destructor as the most sanitary method of refuse disposal, but I am bound to admit that the 'tipping,' as at present carried out at the sewage farm, is robbed of many of its objectionable features, inasmuch as the refuse is levelled and covered over with a good layer of earth, thus obviating the nuisance associated with the ordinary tip.

"The want of a 'destructor' is perhaps more keenly felt for the final disposal of 'trade refuse' accumulating from butchers', fishmongers', provision dealers', green grocers', fried fish and tripe shops; this is not collected with house refuse and leads to many cases of nuisance. Of all kinds of refuse this is surely the worst, and requires destruction by fire."

In the report of the Sanitary Inspector of Leek Urban District, which is embodied in that of the Medical Officer of Health from which I have just quoted, the following remarks appear :—"During the past year, as the result of the inspection, 83 offensive and dilapidated privies have been abolished and proper and sufficient separate water-closet accommodation provided in lieu thereof. Seventy-eight offensive uncovered ashpits have been demolished and proper movable covered galvanised iron receptacles provided in their place."

The following extract is taken from the report of the Sanitary Inspector of the City of Lichfield, which is embodied in that of the Medical Officer of Health :—"I am able to report continued progress in the sanitary condition of the city during the past year. Nearly one hundred old midden privies have been abolished and three-fourths of them replaced by water-closets, and the remainder by sanitary privies. A like number of defective bell-traps have been replaced by proper gully-traps, and numerous foul brick sinks, improper connections to, and badly-constructed drains, have been remedied and put into a proper sanitary form. In the discovery of these defects and other unhealthy conditions the importance of the periodical 'house-to-house' inspection cannot be overestimated.

"The extension of the public water-supply to one locality has rendered a vast sanitary improvement possible; old midden privies, defective drains, and cesspits having previously existed in proximity to house wells. I have received very great assistance in effecting these reforms from property owners and others concerned by their readiness to co-operate and comply with the various suggestions and demands made, although often involving very considerable expense to themselves."

The Medical Officer of Health of the Borough of Longton writes :—" Although the general sanitation of the borough is steadily improving, the process is slow, and will be so until we can clear out all the cesspools and open ashpits, and have all the back passages paved. I am pleased to note that negotiations are taking place with property owners for the purpose of expediting the conversion of these cesspools, and I would like to see bins substituted for all ashpits."

The Medical Officer of Health of the Borough of Newcastle writes :—" During the year 128 water-closets have been substituted for faulty privies, pails, and cesspools, compared with 213 during the previous year.

" In all the plans passed for new buildings during 1905 provision was made for the water-carriage system, so that gradually the old offensive privy system is being superseded."

It would also appear that the number of ashbins in use in Newcastle have increased from 350 in 1904 to 582 this year, and from these the refuse is collected weekly.

The Medical Officer of Health of this Borough concludes his remarks under this heading as follows :—" The whole of this work is now done in a most satisfactory manner, the system now in vogue being much more efficient, and the work now done compares most favourably with the conditions which existed up to a few years ago."

The Medical Officer of Health of Quarry Bank states that " the principal problem to be faced is that of the extinction of the abominable privy middens," and writes as follows :— " All new houses erected during this year have been fitted with wash-down closets of good type, and no special difficulties have arisen with them. The removal of night-soil is still performed with reasonable efficiency by a contractor whose contract expires at the end of March next, when the work will, it is anticipated, pass under the direct control of the Council. Many difficulties are, however, encountered, arising entirely through the wholesale disregard of your bye-laws and of the demands of sanitation, in the existence of huge, uncovered, uncemented ashpits. I again plead with you to give this matter the earnest and urgent attention it requires. It would

be well to encourage the use of large covered metal bins to receive house refuse and ashes, to be emptied weekly, in place of ashpits, as is becoming common in neighbouring districts. These bins are now manufactured largely in your own district."

The Medical Officer of Health of Rowley Regis states that the old privies and privy middens are steadily being replaced by water-closets.

"During the year 76 privies have been converted into water-closets, and 99 water-closets have been put to new houses.

"The bin system is being gradually adopted, and where adopted proves most satisfactory. I trust it will shortly become general, as the present system of keeping dry ashes and other house refuse in large quantities for a lengthy period cannot be devoid of risk."

Judging from the following extract from the report of the Medical Officer of Health of Sedgley, it does not appear that the Authority of that district are following a very enlightened policy as regards the privy midden question; he writes:—"It is convenient at this point to mention that the plan of a privy and ashpit adopted by this Council a few years ago is not being carried out in some new houses. Further, it is advisable that instead of a joint ashpit for two new houses every new house should have a separate ashpit."

The Medical Officer of Health of the Borough of Smethwick writes:—"The erection of a destructor has been commenced. The substitution of W.C.'s for privies and middens has been carried on. During the year 330 privies were abolished, representing 300 houses, and 333 water-closets substituted. Last year there were 310 conversions, representing 317 houses. This, considering the fact that the worst privies and middens have already been dealt with, and that many of those that still exist were built in accordance with the provisions of the Bye-laws, the conversions in the future will not be so readily secured as they have been, owners of property not unnaturally being reluctant to incur the cost of water-carriage system. Still, it is a

matter for satisfaction that landlords continue to comply to so large an extent with the suggestions and requirements of the Sanitary Authority in regard to these nuisances. And I think this shows that they are realizing that it is to their interest to move on with the times, and that they will benefit financially by doing away with the privy system accommodation, which is always a source of expense, and that houses provided with water-closet accommodation are now generally preferred by the people. The following figures, furnished by Mr. Fyles, the Sanitary Inspector, illustrate the progress that has been made during the last 10 years :—

	W.C.'s Provided.	Privies Abolished.	Middens Abolished.	Houses Affected.
1896	140	140	126	151
1897	226	226	175	240
1898	401	395	276	434
1899	509	500	340	569
1900	645	621	394	707
1901	585	585	382	613
1902	409	409	229	433
1903	349	341	220	367
1904	310	304	199	317
1905	333	330	219	308
	3907	3851	2560	4139

"The number of privies and middens remaining at the end of the year was 1,321 and 1,139 respectively, as against 1,651 and 1,318 at the end of 1904. Every new house is now required to be furnished with its own separate water-closet and flushing tank."

The Medical Officer of Health of the Borough of Stoke-on-Trent writes :—"It is satisfactory to note that all new houses are now supplied with ashbins ; there are over 3,500 in the borough, and these are emptied once weekly, and in some cases more frequently. There are also 300 shops in the main streets where there is a daily collection of refuse.

"There are in the district 1900 cesspit closets.

"In 1905, 74 cesspit closets were converted into water closets.

"This most important work of conversion is not progressing as quickly as it ought to. It would be worth while considering the question of spending a certain amount of money yearly in reducing the number of cesspit closets."

The Medical Officer of Health of Stone Urban District writes :—"I am glad to notice that, with pecuniary help from your Authority, the water-closet system is being more adopted and the tub system gradually dispensed with."

The Medical Officer of Health of Tettenhall quotes the following from a report received from the Sanitary Inspector of the district :—"'If periodical removal were adopted, it would take two horses and carts, two teamsters and four nightsoil men four months to get round the whole district.

"'But it is necessary to remove nightsoil from some houses every two weeks, others every month, and others every two or three months. It is evident, therefore, that with two carts and periodical removal many closets would be filled up long before they could be emptied.'"

In commenting upon the above, the Medical Officer of Health says :—"It seems, therefore, that the present staff is inadequate for the work of removal of refuse at periods of reasonable frequency.

"The obvious remedy is to supersede the insanitary system of middens by water-closets, for under the present dual system of excrement removal the Council is doing too much scavenging, while the sewage works, which were provided for the wants of the whole district, are only doing half-time."

The following paragraph is quoted from the report of the Sanitary Inspector of Tipton, which is embodied in that of the Medical Officer of Health :—"The removal of nightsoil and ashes always claims first consideration, believing, as I do, in its utmost importance. My department has been very busy during the year, the amount of work performed, considering the distance the ashes have to be taken as compared with former years, is very satisfactory, as my books will prove; every house visited is carefully recorded. During

the year 26,141 visits have been made, which will approximately represent 14,400 tons. I am concerned about the increased cost in my department, which is caused by the high rents we have to pay for places we are compelled to have for the disposal of the ashes, and also for the cost per ton for conveying excrement into the country for the farmers. There is, however, one redeeming feature which may be hoped for in the new sewerage scheme, which looms in the near future, the possible conversion of hundreds of privies into water-closets, and this may be done at the same time as the drains are connected to the deep sewer. In this and in no other way can the expenses be reduced."

In Tunstall it appears that 164 privies have been converted into water-closets during the year.

With reference to excrement and refuse removal, the Medical Officer of Health of Wednesfield writes :—" The Surveyor recently presented an exhaustive and admirable report dealing with the above, and recommending the Council to consider the advisability of taking the work over themselves at the cost of a small addition to the rates, but the matter was deferred for a time for more mature consideration."

The following extract from the report of the Medical Officer of Health of the Tutbury Rural District applies, so far as it is generally applicable, with equal force to some other rural districts in the county, hence my reason for quoting it *in extenso* :—" The collection and disposal of house refuse, by all Local Authorities in the various parishes under their jurisdiction, is a matter which calls for serious consideration.

" Owing to various reasons, which need not be capitulated, it is a very difficult matter to induce farmers now-a-days to take house refuse for manurial purposes, and, consequently, the disposal thereof becomes a serious difficulty and a great expense to householders in thickly populated districts, the result is, that the cleansing of ashpits and privies is too often neglected until the accumulations become a serious nuisance and a menace to the public health.

"In the case of Tutbury, the Council is to be congratulated on a very successful system of scavenging, which, together with the sewerage scheme, has improved the sanitary condition of the town beyond all recognition.

"A similar system is very desirable for the Parishes of Barton-under-Needwood, Stretton, and Outwoods. A house-to-house inspection made by your Inspector at Barton-under-Needwood during the summer showed that out of 300 houses visited, 240 were found to be in need of some system of scavenging. The estimated cost of the scheme was £100, but owing to the heavy charges already on the Parish for sewerage works, the Parish Council was unwilling to adopt it.

"The Outwoods Parish Council made an application to the District Council for a system of house scavenging at the public expense, but for some reason the application was refused.

"At Stretton, arrangements have been made for the disposal of dry refuse on the Corporation tip at the pumping station, but the disposal of nightsoil is still left to private enterprise.

"In every instance when the disposal of house refuse has come up for discussion, an arrangement is invariably proposed that certain farmers should undertake the collection of the refuse, and they have agreed to do so, with the result that nothing is done; in the summer they are too busy, and in the winter they cannot spare the horses.

"An important point which must not be lost sight of in dealing with this matter is the fact that it costs the average householder 10s. and sometimes more to have his privy cleared once a year. Whereas, a fair average estimate, when the work is undertaken by a Sanitary Authority, is 8s. per house per annum.

"The systematic cleansing of privies and ashpits cannot be too strongly urged upon the Council, it is the best guarantee of a clean bill of health, it is an inducement to the occupier to make the best of his surroundings, and often to the owner to provide better accommodation for his tenant, and, speaking from actual experience, it induces cleanliness and a higher *morale* among the poorer classes."

Sewerage and Sewage Disposal.

Apart from the information already in the Council's possession as to general activity on the part of most authorities in improving the various sewerage systems, it is evident, from the prominence given to the subject in most of the reports, that honest, although, perhaps, somewhat tardy efforts are being made to meet the views of the Council. The following summary of the remarks under this heading will serve to show that this is the case :—

Having referred to certain drainage work which has been carried out during the year, and which has removed pollution from the river Stour, the Medical Officer of Health of Amblecote writes :—" There are two other places in your district in which the disposal of the sewage is not satisfactory, and to which I hope you will be able to give attention shortly. I allude to the properties above the railway line at Vicarage Road and the properties at the Stourbridge end of the district, lying between the river Stour and the canal.

" I am aware that there are engineering problems to be solved in both cases, but I think it should be possible to meet the difficulty. During the year I have had to mention to you complaints from both of these districts—in the former case of illness at one of the houses, which was attributed to defective drainage. One of the chief causes of complaint in the other case has been removed by providing an intercepting chamber at the outlet from the Corbett Hospital, which will now, I believe, effectually prevent the sewer from becoming blocked by anything arising from that source.

" I do not think the sewerage of your district can be said to be complete while these two important localities are unconnected with the main drainage."

The Medical Officer of Health of Brierley Hill, where the question of sewerage and sewage disposal has been hanging fire for so long, pending negotiations with Kingswinford Rural District Council, writes :—" Now that the Council has entered upon negotiations with the Kingswinford Rural District Council, I sincerely hope this scheme will proceed unhindered,

Of the urgent necessity for getting on with the sewerage of the district there can be no possible doubt. Neither can anyone question the advantage of delivering the sewage four or five miles outside your district. The land at Round Hill Farm is exceptionally well suited for the treatment of sewage, and is very unlikely to give any trouble during the period of the proposed agreement."

At Heath Town a careful survey of the Smestow Brook has been made, and the Medical Officer of Health reports that all pollution for which the District Council are responsible has been remedied.

The Medical Officer of Health of Kidsgrove states that plans of a sewerage scheme for the Newchapel part of the district have been adopted.

The Medical Officer of Health of Leek Urban District writes :—" The new tanks and filters are now in process of construction, and by this time next year I venture to hope I may be able to report favourably on the new scheme."

The Medical Officer of Health of Smallthorne writes :—" Nothing has yet been done to abate or even minimise the nuisance at Ford Green, arising from the overflowing of the stagnant, polluted brook." Again, he writes, regarding Chell Ward :—" Until the Ward is properly sewered sanitary reform cannot be carried out effectually. The brook still serves as the main sewer."

The Medical Officer of Health of the Borough of Stafford writes :—" I was able to report last year that some real progress had at last been made in the negotiations with the Rural Authority whereby they agreed to lay the necessary sewers and connect them up to the borough system. The scheme, which provides separate systems for surface-water and sewage, and the necessary loan for carrying it out have been sanctioned by the Local Government Board, so we may now confidently expect to see this pollution, which has so long been a menace to the health of the town, effectually removed from our midst." Regarding the borough sewage disposal works, he writes :—" Hitherto, the reports by the County Analyst have shown that the sewage has been satis-

factorily dealt with on the Lammascotes Farm. Last year, however, it became evident that the land was getting 'sick,' as the effluent had considerably deteriorated in character, though an improvement was evidenced again towards the end of the year. It has been decided to reserve another 47 acres for the treatment of the sewage, and it is expected this will effect a perfectly satisfactory purification of the effluent."

The Medical Officer of Health of Stone Urban District writes :—" These remain rather at a standstill. A deputation from your Authority visited Guildford in the autumn to investigate the oxychloride treatment of sewage and to consider how far it might be suitable for, and obviate the difficulty that exists, in enlarging and improving our present works situated near the town. The report was a favourable one, though it was suggested that further experiments might be thought advisable. The problem of deodorizing sewage near to houses previous to bacteriological treatment appears to me to be solved by this process, and may prevent the expense of removing our works some miles farther from the town. It would be a serious financial loss to the town if the present site, which only a few years ago was approved by the Local Government Board, and the Medical Officer of the County Council, and upon which a large sum of money has been expended, should ultimately prove to be unsatisfactory. The matter is now under the consideration of the Local Government Board."

With reference to the last few lines of this quoted paragraph, it must be remembered that when the existing outfall site was under consideration it was distinctly understood that the untreated brewery waste would not be received into the sewers, whereas it is to the connection with the sewers of such waste that the whole difficulty as regards nuisance has arisen.

The Medical Officer of Health of Wolstanton writes :—" The sewage disposal of the district remains the same as last year.

" Improvements have been carried out in the manner of distribution of sewage at the Holditch Farm.

"Plans and sections of a new scheme for dealing with the sewage from Basford, Longbridge Hayes, and a part of Porthill, by means of bacteria beds, are now complete, and will be sent to the Local Government Board as soon as negotiations are complete *re* outfall site.

"The houses on the Keele Estate, mentioned in last year's report, have now been connected with the Silverdale sewers."

The Medical Officer of Health of Cannock Rural District refers to the completion of new sewerage and sewage disposal works at Brewood and Fordhouses, and congratulates his Authority upon the results in both cases. It would appear also that schemes for Bushbury, Cheslyn Hay, and Essington, are under consideration, and as regards Penkridge, the Medical Officer of Health states that a scheme must soon be taken in hand.

The Medical Officer of Health of Leek Rural District writes, regarding a proposed scheme for Endon, as follows :—"This matter has been referred to the Endon Parish Council, who are considering a modification of Messrs. Willcox & Raikes' scheme. A portion of the scheme will, when carried out, remedy the pollution of the Endon brook, near the railway station."

The Medical Officer of Health of Lichfield Rural District writes, with reference to Chasetown, as follows :—"For the purpose of further dealing with the sewage of this village, the District Surveyor reports that 'during the past year over an acre of rough ground has been levelled down and made good for filtration, and another field adjoining is also being used for the same purpose, under an arrangement with the owner.'"

In the same report the following appears regarding Chase Terrace :—"The District Surveyor also reports that 'the new sewerage scheme has been started and is now being proceeded with at Chase Terrace, and it is expected that it will be completed by the end of the summer.'"

With reference to Shenstone, in the same Rural District, the Medical Officer of Health writes :—" The population of this village having considerably increased of late years, and a number of new houses having recently been added to it, the old system of sewerage has been found quite inadequate for its present needs, and was condemned as thoroughly bad, a great many connections having been found between the house drains and the storm-water drain. Much sewage, in consequence, found its way into the brook in a crude form. Your Council, being appealed to, have decided to adopt a new scheme of sewerage for the whole village, and the necessary steps are now being taken to carry this out."

The Medical Officer of Health of Mayfield Rural District writes, with reference to a sewerage scheme or the village of Mayfield, as follows :—" In June last the Local Government Board held an inquiry with reference to the scheme for the sewerage of the villages of Mayfield, as designed by Messrs. Willcox & Raikes. Considerable opposition was raised to the scheme, principally on account of the excessive cost, and though the scheme is still before the Board, it is improbable that it will be adopted in its present form. The suggestion of Dr. Reid, County Medical Officer, to carry out small sectional schemes, treating each hamlet separately, received the consideration of the Council, and with this object in view a thorough inspection of the villages has been made by the Sanitary Inspector. Plans and estimates of the schemes, designed on these lines, will be submitted to the Council at an early date, when it is anticipated something will be done to remedy the greatest of the existing defects."

With reference to the sewage disposal works at Ellastone, another village in the Mayfield Rural district, the following paragraph from the report of the Medical Officer of Health calls for attention, as showing the need for measures being taken to curtail the volume of storm-water now entering the sewers :—" In referring to this matter I can only repeat my remarks of last year. The tanks and filters are found to work quite satisfactorily during normal weather, but in times of heavy or continued rain the large quantity of surface-water which finds its way into the sewer at Dove Street

completely chokes the beds. This was especially noticeable during the latter months of the past year."

The Medical Officer of Health of Newcastle Rural District writes :—" The whole of the houses at Madeley Heath, Little Madeley, and Middle Madeley are now connected to the main sewers, and the sewage is being treated at the outfall works, which are in full working order, and appear to be producing a satisfactory effluent.

" Owing to the large amount of water met with in laying the sewers through Great Madeley the contractors have not yet been able to make the sewers water-tight to the satisfaction of the Engineer.

" A subsoil drain is being laid in order to make the sewer watertight, and the work is nearing completion, after which the houses will be connected."

The Medical Officer of Health of Stone Rural District writes regarding the village of Trentham, as follows :—" This village has had some 80 houses erected during the last few years, and all on a water carriage system so far as regards the disposal of the sewage.

" The Duke of Sutherland (as you are aware) has hitherto most generously paid all the expenses of laying pipes and carrying the sewage to the meadows below Strongford Mill.

" This, until recently, was turned in a crude condition into the river, but now the sewage is roughly screened and most of the solid matter removed, and some portion of the effluent passed through a shallow filter bed, with turf only as the filtering agent, but the greater part is allowed to irrigate some land, where it lies in a stagnant condition, ultimately reaching the river.

" Complaints have been made to me on several occasions of nuisances caused by defective sewerage arrangements in the village, but until your Authority exercises that control of the sewers which is undoubtedly yours, no remedial measures are practicable on the part of your Sanitary Officers."

Regarding the villages of Hanford and Barlaston in the same Rural District, the Medical Officer of Health writes :—" At Hanford negotiations with the Fenton Urban District Council are still proceeding, but I fail to see that any satisfactory result will be attained. Unless the sewage is treated by bacterial tanks, as suggested by the County Medical Officer, the only alternative is to join with Trentham for the combined treatment of the sewage below Strongford Mill.

" At Barlaston new houses are being erected, but I am afraid a difficulty will arise as to the treatment of the sewage. Complaints are already made of sewage from the lower part of the village finding its way into the North Staffordshire Canal."

With reference to Tamworth Urban and Rural Districts, a joint scheme of sewerage and sewage disposal has been framed, which it is estimated will cost £25,000. It embraces parts of the Staffordshire and Warwickshire rural areas and the Borough of Tamworth, and the following are the conditions agreed upon, as set forth in the report of the Medical Officer of Health :—" 1. The Borough main intercepting sewer to be a joint outfall sewer from the point where it first receives sewage from the rural district.

" 2. The purchase of all lands, and the cost of construction of all joint works in connection with the joint sewage disposal scheme, to be contributed and borne by the two Authorities in equal shares.

" 3. Cost of maintenance and working expenses of all joint works to be apportioned and contributed on the basis of quantity of sewage from each district actually dealt with. Cost of future extensions to be apportioned and contributed on the same basis as ascertained by the figures of the last preceding year.

" 4. Sewage from Wigginton or other parts of the rural district flowing into the borough separate sewers to be subject to special arrangements.

" 5. The joint works to be designed and carried out jointly by the Borough and Rural District Engineers, their plans and specifications to be first approved by a Consulting Engineer

who shall be retained to inspect and report on the execution of the works from time to time whenever required by the Joint Committee or either of the Engineers. The fees of such consultants shall be borne by the two Authorities equally.

"6. The local Engineers shall, in case of dispute between themselves or between themselves and the consultant, be bound by the decision of such consultant.

"7. Either Authority may call in any Engineer on its own behalf at its own cost.

"8. The carrying out and future management of the joint works to be delegated to a joint committee, to consist of an equal number of representatives from each Authority, and to be subject to directions to be contained in a written agreement. The chairman of such joint committee to be appointed yearly, and to be selected alternately from the urban and rural representatives."

The Medical Officer of Health of Tutbury Rural District writes under this heading :—"The schemes at Barton-under-Needwood and Tutbury are working satisfactorily. In the latter place, during the summer, there was some trouble owing to the insufficient flushing and ventilating of the sewers, the smells from the manholes being very bad indeed, but otherwise the scheme is an entire success, and the result has been great immunity from zymotic disease in the town. An arrangement has now been completed where, by a judicious closing of some of the open manholes in both Barton and Tutbury, the nuisance arising from the foul gas from the sewers may be abated.

"The schemes at Rolleston and Branstone are well on their way towards a commencement, which is expected in the near future."

With reference to a sewerage scheme for the village of Rocester, the Medical Officer of Health of Uttoxeter Rural District writes :—"The insanitary condition of the village at Rocester has been the cause of great anxiety for many years. The scheme suggested by Messrs. Willcox & Raikes was approved of by this Council last year, but you have delayed going further into the matter, pending the consideration of a more economical scheme."

As pointing to the urgent need of a sewerage scheme for Rocester, in the same report, in discussing cases of diphtheria, the Medical Officer of Health says :—" The cause of the prevalence of this disease at Rocester is due principally to the want of a proper system of drainage."

Regarding Kingston, in the same Rural District, it is said that nothing practical has been done to prevent the pollution of the stream by sewage.

Water-supply.

The following is a summary of the remarks with reference to water-supply in those districts where the subject receives most notice in the reports. The Sanitary Committee of the County Council have frequently had occasion to spur on Authorities in districts where good public supplies are available, but where many old local wells, liable to pollution, are in use.

The Medical Officer of Health of Coseley writes :—" The water-supply of the district is being steadily improved, and by the time of writing the next annual report I hope that practically all houses will be connected to the public supply ; 97 houses (apart from new houses) have been connected during the year."

The Medical Officer of Health of the City of Lichfield writes :—" During the hot weather, and probably owing to the sinking of shafts by the South Staffordshire Water Works, many of the wells have run dry, and there has been in consequence a lamentable want of water for all purposes in some districts. The extension of the Conduit Lands supply, which your Council is endeavouring to procure, will prove a great benefit, and will improve the sanitary condition of these districts very considerably."

With reference to the extension of the Wolverhampton Water Works, the Medical Officer of Health of Tettenhall writes as follows :—" Unfortunately for Tettenhall the pumping from the experimental borehole has apparently had a serious effect upon the several wells in the Tettenhall district. Shortly after the passing of the Staffordshire and

Worcestershire Canal Act, 1903, the Tettenhall Council caused a report to be prepared by Messrs. John Taylor, Sons, & Santo Crimp, of St. George Street, Westminster, from which it appears that about 150 wells existed in Tettenhall for the purpose of house supply. Since the middle of 1905, however, very serious complaints have been received of shortage of water in several of these wells. At the property of Mrs. Cartwright's Trustees, in School Road, Tettenhall Wood, two wells supplying nine houses, and which had always produced an unlimited supply of water since they were sunk in the year 1842, became depleted, and the water has not since returned. Similar complaints have also been received of the disappearance of water in wells which supply the property of Miss Collins, Upper Green, Mr. Reade, Upper Green, the Diamond Cottages, and elsewhere. It remains to be seen how far the new boring at Tettenhall will further affect the wells of the district."

The Medical Officer of Health of Uttoxeter Urban District states that "the higher parts of the town have had a much better supply of water since the pumping commenced from the borehole."

The Medical Officer of Health of Wednesfield writes :— "During the past twelve months the water mains have been extended to The Scotlands and Wood Hayes, and also along the Lichfield and Willenhall Roads. The Wednesfield district is now well covered by the Wolverhampton Corporation water mains, and in the majority of houses tap water is taking the place of well water. During the year I have made many examinations of the latter, and most of them appeared to be polluted in a lesser or greater degree."

The Medical Officer of Health of Cannock Rural District states that the Great wyrley and Cheslyn Hay water schemes continue to work satisfactorily; that the Authority have under consideration an improved supply for Shareshill; and that, by arrangement with the Wolverhampton Corporation, a supply is now being provided for Fordhouses.

The Medical Officer of Health of Gnosall Rural District states that if any further evidence were required as to the need for pressing on with the scheme of water-supply for the

village of Gnosall "it has been furnished this year by the long spell of dry weather, which caused a greater shortage of water than ever, wells having been reported to have failed in their supply, which had not been ever remembered to have done so before."

With reference to a supply of water for the village of Mayfield, the Medical Officer of Health of Mayfield Rural District writes :—"The Council have, during the past few months, made a great endeavour to put this work into definite form. A favourable site for the intake has been found by the river Dove at Birdsgrove, but the water would have to be raised from here to a considerable height, and at a distance of about half-a-mile. The excessive cost of pumping plant, and the great difficulty which would be experienced in working a ram satisfactorily have been impediments in the way of this scheme, and with a view to lessen the length of rising main, the Council has recently been carrying out investigations in the hope of tapping the same water at a point nearer the site of the proposed reservoir. A trial well has been sunk to a depth of 40 feet, and the work will be continued, as present appearances seem distinctly favourable."

The Medical Officer of Health of Tutbury Rural District writes :—"The question of providing a supply of water for the town of Tutbury still engages your attention. The well sunk in Corn Mill Lane seems to be the best available source. The Engineers are of opinion that the quantity of water will be ample, and the Analyst says that the quality is good."

Slaughter-Houses and Meat Inspection.

Most of the reports refer to the inspection of slaughter-houses, and as a rule they are said to be in a fairly satisfactory state. I am afraid, however, that the standard is not a very high one, and that the favourable comments have reference more to the condition as to cleanliness than to structural fitness in many cases.

The Medical Officer of Health of the Borough of Stoke-on-Trent writes :—"Under the present bye-laws dogs may be kept in the slaughter-houses, also animals not intended for

slaughter. The slaughter-houses may be used as stables, and the boundaries of the slaughter-houses need not be defined. These deficiencies require attention."

In Tipton it appears that slaughter-houses are not now registered, but are licensed, so that the licence may be revoked if the premises are so kept as to cause a nuisance.

The Medical Officer of Health of Willenhall writes :—" Towards the end of 1904, and for many weeks at the early part of 1905, a good deal of very lean meat of very doubtful quality was exposed for sale on a stall in Willenhall Market Place. I strongly suspected that much of it was the meat of diseased animals, but nothing was exposed which would justify condemnation. As there was reason to believe the animals had not been slaughtered in Willenhall, enquiries were made in several adjoining towns. Information was obtained that a slaughter-house in Short Heath, for which district I am also Medical Officer of Health, supposed to be void, was occasionally being used under suspicious circumstances. I directed these premises to be watched, with the result that ultimately two sheep were seized and condemned, whose lungs were suppurating and full of miliary tubercles. Prosecution ensued, and a heavy fine was inflicted. I have no means of knowing whether any of the meat suspected at Willenhall came from the same slaughter-house ; my belief is it came from elsewhere—but wherever it came from, your Sanitary Inspector informed me, the prosecution led to a better quality of meat on the suspected stall for several months afterwards. Towards the end of the year meat of suspicious quality was again exposed ; and although I was unable to condemn that which I believed to be the meat of a diseased animal in the absence of its internal organs, I condemned and ordered the seizure of one joint of very much better quality, which was undergoing putrefaction ; prosecution ensued, and a small fine was inflicted. Under these circumstances I wrote to Professor Leith, of the University of Birmingham, to ask him whether they had the necessary means in the bacteriological laboratory for examining and detecting the bacilli of consumption in lean meat, and if so, whether they could undertake such examinations, and upon

what terms. He has kindly replied in the affirmative, at a fee of one guinea per sample sent. The tests would cover in each case a period of three or four weeks, and it is probable many samples of lean meat might be sent before a case was met with, in which there were tubercular bacilli. I therefore invite the Council, in the event of need, to have several samples of suspected lean meat purchased and sent for examination."

Dairies, Cowsheds, and Milkshops.

The work under the Dairies, Cowsheds, and Milkshops Order receives attention in most of the reports.

The following is extracted from a report of the Sanitary Inspector of Brierley Hill, which is embodied in the report of the Medical Officer of Health :—" Ninety-eight visits have been made to the cowsheds and milkshops in the district. I am pleased to report a continued improvement in the condition under which cattle are kept. Five new cowsheds have been built during the year to replace the insanitary ones which were condemned. Two have been altered to comply with your requirements, and in another case more suitable premises have been taken to replace the one closed by you. Two other sheds have been closed during the year.

" This process of weeding out has taken time and patience, and in some cases the desired result could not be obtained until legal proceedings were commenced or threatened. The chief defect in most of the cowsheds is want of good drainage ; this, no doubt, will be remedied when the projected new sewerage scheme is completed.

" The cleanliness of the cowsheds and the personal habits of those who have charge of cattle leave something yet to be desired. It is surprising to see the alarming ignorance displayed by people who have been keeping cows for many years. Upon several occasions I have been compelled to request persons whom I have found milking cows with indescribable hands to wash them, and also the teats of the cow. This does not apply to all, and I am bound to say that some of the cowkeepers deserve special praise for the cleanliness and care with which they conduct their business. Their cows are well groomed, and the sheds and utensils are kept clean as hand

can make them ; thus going to prove that with a little care and energy all serious objections may be removed. Old-fashioned notions and prejudices die hard, and it will be some time before the happy ideal is attained ; in the meantime the educational work must go on."

Under this heading, the Medical Officer of Health of the Borough of Longton writes :—" These are kept somewhat cleaner than formerly, but, generally speaking, they continue to be overcrowded, ill-lighted, ill-ventilated, and some of them are badly constructed. We have obtained the waterworks supply of water in three cases, where they were formerly dependent on doubtful wells for the purpose, and, of course, the wells have been closed."

The Medical Officer of Health of Mayfield Rural District writes :—" Considerable improvement in the condition of the cowsheds has been noticed during the past year. But few notices have been served with respect to structural improvements, as in many cases owners have themselves taken the matter up. A difficulty is still experienced in obtaining the requisite cubic space, but the reduced standard fixed by the Council, viz., 650 to 700 in the hilly parts of the district, and 750 to 800 in milder localities should be within the reach of all."

The Medical Officer of Health of Tutbury Rural District writes :—" Renewed attention has been given to the question of milk-supply, a matter of the first importance in a district like this, where it is the principal industry. At Hanbury in particular, where in six cases houses discharging their drainage in the water-supply were successfully dealt with by your Inspector.

" The estimated number of cowsheds and dairies is 200, of which no less than 88 are situated in the Parish of Hanbury and Anslow. The general condition of these cowsheds and dairies may be described as good, and with few exceptions no trouble has been experienced in carrying out the bye-laws relating to them. The establishment of such factories as Messrs. Nestle's and the Sudbury Dairy Co. in our neighbourhood, with their own Inspectors, facilitates the work of supervising this department.

"Arrangements for periodically taking samples of milk for analysis have been completed. There are, of course, great difficulties in the way of ensuring an uncontaminated milk-supply, the sources of pollution are so many, the cow is often encrusted with filth, the milkers not clean, the milk utensils dirty, and the air of the sheds loaded with excrementally polluted dust. These are details of the greatest importance, and the utmost care should be taken to ensure that the cows, milkers, and utensils are as clean as it is possible to make them, the byres well ventilated and frequently cleansed and lime-washed."

Canal Boats.

In a few instances only does the question of canal-boat inspection receive notice in the reports under review, and in none of these are there any remarks which call for special attention.

Lodging-Houses.

The remarks under this heading in the reports do not call for special notice.

Bakehouses.

Most of the reports mention the fact that the bakehouses are regularly inspected, but few contain any observations under this heading which call for special notice.

As regards underground bakehouses, apparently there are very few in any of the districts of the Administrative County.

Factories and Workshops.

Hitherto, this question has not received much notice in the annual reports of Medical Officers of Health, but since the new Factory Act came into operation, in January, 1902, considerable space has been devoted to the subject, the result of numerous inspections which have been made, in most districts, under the Act. As time goes on, it will no doubt be found that the work will grow, and it behoves Authorities to consider whether the existing staffs in some of the larger urban districts are adequate under the new order of things. It is impossible to summarise at all fully the work which has been done in this department during the year.

In the report of the Medical Officer of Health of Coseley the following sad details are given :—" There are no firms in the district who give out home-work, and the number of out-workers is diminishing from various causes. They all work in connection with wearing apparel.

" I understand that the pay for this work is at the following rates :—For making cloth jackets, 5d. each ; moleskin jackets, 6d. each ; corduroy jackets, 6½d. each ; for trousers, between 3d. and 4d. is paid. In all cases the workers provide the cotton and needles. Calculating the time the remuneration appears to be about 2d. an hour."

In Fenton it appears that there are now only 16 privies in connection with factories, those previously existing having been converted into water-closets.

In Rowley Regis there are no less than 3,099 factories, workshops, home-workers' premises, and work places, and a like number of visits of inspection were made during the year. The Medical Officer of Health writes :—" The Act still continues to work smoothly, and legal proceedings have not been called for. Limewashing of the premises is done periodically every six months. The practice of keeping animals in the workshops is an exceptional occurrence."

Mortuaries.

The question of providing mortuaries does not appear to receive that attention in the reports which its importance deserves, considering the inadequate provision which, so far, has been made throughout the County. One does not like to see in accounts of inquests in the daily press severe comments by coroners upon the absence of such provision.

The Medical Officer of Health of Heath Town writes :—" It is very important that there should be a public mortuary provided for the district, and also that some provision should be made for one at the Infectious Hospital. Fortunately, when the one case died, there was one ward empty. Had it not been so, the disposal of the body would have been a difficult matter."

It is hardly credible that in an important town like Stoke-on-Trent the provision made in this respect is such as is described in the following paragraph from the report of the Medical Officer of Health of the Borough :—" One of the compartments of the stables in the Corporation yard has been set aside as a place where bodies might be deposited while awaiting an inquest and burial. It can hardly be described as a mortuary. The position is also unsuitable, it being next to the men's mess-room."

Bye-Laws.

In a good many districts in the Administrative County either no Bye-laws have been adopted or those in force are out of date. It is most desirable that Bye-laws in accordance with modern ideas should be in force in all districts.

GEO. REID,

Stafford, County Medical Officer of Health.
October, 1906.

NOTE.—In the following tables the individual zymotic mortality is given in order to indicate readily the class of disease that has mostly contributed to the gross rate. Apart from this, no accurate deductions can be drawn from such figures for one year only.

URBAN.

Table showing Population, Number of Persons per Acre, Birth and Death-rates, as well as the Death-rates at all ages and among Children under 1 year, and the Death-rates from Zymotic Diseases, Phthisis, Diseases of the Respiratory Organs, &c.

DISTRICT.	Population at all ages.		Number of persons per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population.									Phthisis.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Premature Birth.
													Fevers.											
	Census, 1901.	Estimated to middle of 1905.						Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Typhus.	Enteric.	Other Continued.	Diarrhœa.								
Amblecote ..	3128	3313	4·9	25·3	11·1	59	Nil.	..	..	..	..	..	..	..	..	..	1·20	0·30	0·30	..	..	..	0·30	0·60
Audley	13683	13800	1·7	32·8	16·1	140	2·10	..	0·79	0·14	0·79	0·14	..	0·07	..	0·14	0·57	0·43	2·02	0·65	..	..	0·14	0·50
Biddulph	6247	6656	1·3	36·0	15·4	120	1·65	..	0·45	..	0·45	0·15	.	..	..	0·60	0·90	0·15	1·50	2·25	0·15	0·30	..	0·90
Bilston	24034	24300	13·0	38·5	19·4	184	0·74	..	0·04	..	0·12	0·04	..	0·16	..	0·37	0·90	0·45	3·33	1·35	..	..	0·08	0·61
Brierley Hill..	12042	12822	12·4	31·8	15·2	159	2·18	..	0·93	..	0·07	0·15	..	..	..	1·01	0·38	0·70	1·63	1·63	..	0·07	0·15	0·46
Brownhills ..	15252	17004	1·9	34·2	13·8	146	1·23	..	0·11	0·05	0·41	0·23	..	..	..	0·41	0·76	0·52	0·88	2·41	..	..	0·05	0·41
Burslem.....	38766	41622	22·2	32·3	20·7	202	2·81	..	0·26	0·33	0·48	0·31	..	0·14	..	1·27	1·20	0·81	2·40	0·67	0·04	1·12	0·09	0·60
Cannock.....	23974	24000	2·9	37·3	16·4	141	2·37	..	1·33	0·20	0·12	0·08	..	0·12	..	0·50	0·95	0·33	1·33	1·70	0·04	0·58	0·20	0·91
Coseley	22219	22250	5·6	36·5	17·1	125	2·15	..	0·85	0·31	0·31	0·04	..	0·18	..	0·44	1·03	0·58	1·43	1·03	0·04	..	0·40	0·58
Darlaston	15395	15660	19·0	37·8	20·2	219	3·31	..	0·95	..	0·12	0·25	..	0·51	..	1·46	0·89	0·31	1·85	1·21	..	0·06	0·31	1·34
Fenton	22742	25529	14·1	36·5	18·8	186	3·45	..	0·66	0·03	0·74	0·31	..	0·19	0·03	1·44	1·09	0·58	1·99	1·91	..	0·07	0·23	0·39
Handsworth..	52921	65249	17·8	22·7	10·0	80	0·62	..	0·12	0·04	0·06	0·06	..	0·03	..	0·30	0·67	0·72	0·65	0·78	0·03	0·01	0·18	0·49

URBAN.

Deaths occurring during the year 1905, classified according to Diseases, Ages, and Localities, together with Births registered during the year.

District.	Registered Births.	Deaths from all causes.	Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																												
			Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fevers. Typhus.	Fevers. Enteric.	Fevers. Other Continued.	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tubercular Diseases.	Cancer. Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs	Alcoholism. Cirrhosis of Liver.	Venereal Diseases	Premature Birth.	Diseases & Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	All other Causes.
Amblecote ..	84	37	5	1	4	2	15	10	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	4	2	1	1	..	..	..	1	.	2	..	5	2	..	17
Audley	454	223	64	42	9	10	51	47	..	11	2	11	2	..	..	1	..	5	2	10	..	..	..	8	8	6	28	9	..	..	2	..	7	1	17	10	..	83
Biddulph	240	103	29	22	3	4	21	24	..	3	..	3	1	1	..	..	..	2	4	..	..	..	3	6	7	1	10	15	1	2	..	..	6	..	7	1	..	30
Bilston	937	473	173	47	7	16	123	107	..	1	..	3	1	..	..	4	..	4	9	33	..	1	..	22	7	11	81	33	..	..	2	1	15	5	24	25	3	188
Brierley Hill..	408	196	65	29	9	6	42	45	..	12	1	..	2	..	..	..	..	1	13	5	..	..	2	5	6	9	21	21	..	1	2	..	6	3	13	4	..	69
Brownhills ..	582	236	85	39	7	7	60	38	..	2	1	7	4	..	..	..	..	1	7	2	2	1	..	13	2	9	15	41	..	..	1	..	7	..	21	9	..	91
Burslem	1346	864	272	145	34	33	253	127	..	11	14	20	13	9	..	6	..	8	53	4	3	..	8	50	31	34	100	28	2	47	4	6	25	8	56	22	3	299
Cannock	897	395	127	70	18	12	98	70	..	32	5	3	2	1	..	3	..	4	12	6	3	3	1	23	8	8	32	41	1	14	5	..	22	10	26	7	..	123
Coseley	813	381	102	62	26	11	87	93	..	19	7	7	1	..	..	4	..	6	10	18	1	2	..	23	15	13	32	23	1	..	9	..	13	2	26	11	1	137
Darlaston	592	317	130	43	12	12	76	44	..	15	..	2	4	..	..	8	..	10	23	3	..	..	2	14	22	5	29	19	..	1	5	..	21	2	16	10	1	105
Fenton	933	482	174	71	12	12	153	60	..	17	1	19	8	..	..	5	1	6	37	..	3	..	..	28	4	15	51	49	..	2	6	2	10	4	43	15	3	153
Handsworth..	1483	657	119	64	20	23	244	187	..	8	3	4	4	..	..	2	..	13	20	10	..	..	4	44	12	47	43	51	2	1	12	1	32	5	78	22	2	237

URBAN—continued.

District.	Population at all ages. Census, 1901.	Population at all ages. Estimated to middle of 1905.	Number of persons per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population. Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Fevers. Typhus.	Enteric.	Other Continued.	Diarrhœa.	Phthisis.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Premature Birth.
Heath Town..	9441	10741	14·5	35·5	14·8	170	3·25	..	1·11	0·09	0·28	0·09	..	0·18	..	1·49	0·85	0·55	0·85	1·76	..	..	0·28	0·93
Kidsgrove....	8412	8703	2·9	34·0	13·7	131	1·37	..	0·34	0·11	0·34	0·22	..	0·22	..	0·11	0·68	0·91	2·06	0·80	..	0·11	0·11	1·14
Leek	15484	16150	11·0	26·3	14·4	120	0·61	..	0·06	..	..	0·24	..	0·18	..	0·12	1·42	0·55	1·30	0·61	..	0·12	0·37	0·80
Lichfield.....	7902	7902	2·3	28·9	13·1	87	0·12	..	..	..	..	..	..	..	..	0·12	1·01	1·13	1·13	0·63	..	..	0·25	0·50
Longton.....	35815	35912	17·9	36·5	21·1	196	2·97	..	0·36	..	0·52	0·22	..	0·11	..	1·75	1·08	0·83	3·00	0·69	0·02	1·36	0·30	0·94
Newcastle....	19914	20500	33·0	27·5	18·3	189	3·75	..	2·14	0·19	0·48	0·19	..	0·29	..	0·43	0·87	0·63	1·75	2·00	0·04	0·14	0·09	0·53
Perry Barr....	2348	2390	0·5	30·1	14·2	69	0·83	..	..	0·83	..	..	..	..	..	..	..	0·83	0·83	2·09	..	..	..	1·67
Quarry Bank..	6912	6994	7·1	33·3	18·1	150	1·00	..	0·42	..	0·42	0·14	..	..	..	..	1·28	1·57	1·42	2·86	..	..	..	..
Rowley Regis.	34670	36900	10·0	33·2	14·6	147	1·84	..	0·46	0·13	0·38	0·05	..	0·08	..	0·73	0·65	0·70	1·57	1·21	..	0·05	0·21	0·65
Rugeley.....	4447	4450	7·4	28·9	14·3	131	1·12	..	0·89	..	..	..	..	..	..	0·22	0·67	0·67	2·02	0·89	0·22	..	0·89	0·67
Sedgley.....	15951	16050	4·2	34·1	16·8	156	2·67	..	1·55	0·12	0·24	0·12	..	0·12	..	0·49	0·68	0·74	1·12	1·99	..	..	0·31	0·68
Short Heath..	3531	3783	3·5	33·8	20·3	195	1·58	..	..	..	0·79	..	..	..	..	0·79	1·85	1·32	2·64	1·85	0·26	..	..	0·79
Smallthorne..	11970	12650	4·3	40·8	21·5	185	4·34	..	2·53	0·31	0·31	0·23	..	0·15	..	0·79	0·71	1·34	3·16	0·39	0·07	0·15	0·15	0·55
Smethwick....	54539	63000	32·6	30·3	13·7	139	1·76	..	0·66	0·11	0·44	0·01	..	0·09	..	0·42	0·73	0·58	1·08	1·63	..	0·03	0·09	1·01
Stafford	†19495	‡21268	21·0	26·8	14·9	134	1·64	..	0·61	0·04	0·37	..	..	0·04	..	0·56	1·17	0·70	1·03	1·22	..	0·04	0·09	0·47

† Excluding Public Institutions.
‡ The total estimated population is 22813, but a deduction of 1545 has been made, that being the estimated number of persons in Public Institutions within the borough, but not belonging to it.

URBAN—continued.

District.	Registered Births.	Deaths from all causes.	Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																												
			Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fevers. Typhus.	Fevers. Enteric.	Fevers. Other Continued.	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tubercular Diseases.	Cancer. Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs	Alcoholism. Cirrhosis of Liver.	Venereal Diseases	Premature Birth.	Diseases & Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	All other Causes.
Heath Town..	382	159	65	31	4	3	28	28	..	12	1	3	1	..	..	2	..	1	16	3	..	..	..	9	1	6	9	19	..	..	3	..	10	2	12	1	..	48
Kidsgrove....	296	120	39	18	7	3	24	29	..	3	1	3	2	..	..	2	..	1	1	..	..	..	..	6	5	8	18	7	..	1	1	..	10	..	8	5	..	38
Leek	425	233	51	19	10	13	70	70	..	1	..	..	4	..	..	3	..	3	2	6	..	..	..	23	1	9	21	10	..	2	6	1	13	1	35	1	2	89
Lichfield.....	229	104	20	1	1	7	39	36	..	..	..	..	..	..	..	..	..	..	1	3	..	..	..	8	4	9	9	5	..	..	2	..	4	..	12	1	1	45
Longton	1311	760	258	99	20	29	237	117	..	13	..	19	8	1	..	4	..	1	63	21	1	..	5	39	24	30	108	25	1	49	11	4	34	8	67	19	..	205
Newcastle....	564	376	107	72	12	13	115	57	..	44	4	10	4	..	..	6	..	1	9	8	..	..	..	18	10	13	36	41	1	3	2	1	11	2	35	8	3	106
Perry Barr....	72	34	5	4	2	3	15	5	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	2	5	..	..	..	..	4	..	3	2	2	11
Quarry Bank..	233	127	35	19	6	7	39	21	..	3	..	3	1	..	..	..	..	..	..	1	..	1	1	9	3	11	10	20	..	..	..	..	..	2	13	4	..	45
Rowley Regis.	1227	540	181	71	14	20	124	130	..	17	5	14	2	..	..	3	..	3	27	7	..	..	3	24	18	26	58	45	..	2	8	..	24	5	18	17	3	211
Rugeley.....	129	64	17	6	2	3	16	20	..	4	..	..	..	1	..	..	..	2	..	1	..	..	..	3	3	3	9	4	1	..	4	..	3	..	3	2	..	21
Sedgley	548	270	86	55	9	8	56	56	..	25	2	4	2	..	..	2	..	1	8	2	..	..	..	11	12	12	18	32	..	..	5	..	11	2	20	9	1	91
Short Heath..	128	77	25	10	1	5	20	16	..	..	..	3	..	..	..	..	..	1	3	1	..	..	..	7	3	5	10	7	1	..	..	1	3	..	1	4	..	27
Smallthorne..	517	272	96	54	18	11	55	38	..	32	4	4	3	1	..	2	..	1	5	5	..	..	..	9	12	17	40	5	1	2	2	1	7	2	11	4	..	102
Smethwick....	1910	865	266	148	40	30	232	149	..	42	7	28	1	..	..	6	..	6	27	21	3	1	..	46	45	37	68	103	..	2	6	5	64	6	64	34	7	236
Stafford	571	318	77	30	14	13	99	85	..	13	1	8	..	1	..	1	..	..	9	3	3	..	..	25	9	15	22	26	..	1	2	..	10	3	29	6	3	128

URBAN—continued.

District.	Population at all ages. Census, 1901.	Population at all ages. Estimated to middle of 1905.	Number of persons per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population. Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Fevers. Typhus.	Enteric.	Other Continued.	Diarrhœa.	Phthisis.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Premature Birth.
Stoke-on-Trent	30458	33688	18·3	28·7	14·8	154	2·34	..	0·68	0·09	0·62	0·48	..	0·12	..	0·35	0·92	0·48	1·36	1·24	..	0·02	0·29	0·48
Stone	5680	5720	5·3	23·7	16·6	154	2·09	..	..	..	..	1·74	..	..	..	0·34	1·04	0·34	1·57	0·17	..	0·52	0·17	0·34
Tamworth	7271	7550	26·4	26·0	12·8	147	1·19	..	0·26	..	0·39	0·13	..	..	..	0·39	0·79	0·92	1·19	1·05	..	0·52	..	..
Tettenhall	5337	5422	4·4	21·3	9·9	51	0·18	..	..	..	..	..	..	..	..	0·18	0·35	1·10	1·47	0·73	..	..	0·18	..
Tipton	30543	31250	14·4	34·3	15·2	132	3·20	..	1·56	..	0·03	0·28	..	0·19	..	1·12	0·57	0·54	1·24	0·13	0·03	..	0·16	0·44
Tunstall	24250	27350	15·6	36·4	19·3	200	1·71	..	..	0·32	0·32	0·07	..	0·07	..	0·91	0·95	0·36	2·12	1·82	0·07	0·10	0·18	0·58
Uttoxeter	5133	5350	5·1	30·8	14·0	145	0·74	..	..	..	..	0·18	.	..	..	0·56	0·56	0·74	1·30	0·56	..	0·37	0·56	0·93
Wednesbury	26554	26700	11·6	32·6	15·2	144	2·69	..	1·12	..	0·30	0·33	..	0·30	..	0·63	1·08	0·41	1·76	1·04	..	..	0·03	0·63
Wednesfield	4883	5700	1·0	43·6	14·0	144	1·05	..	0·17	..	..	0·17	..	..	..	0·70	0·52	0·17	1·40	1·05	..	..	..	1·40
Willenhall	18515	19179	15·3	30·8	15·3	143	1·09	..	..	0·20	0·57	0·10	..	0·05	0·05	0·15	1·04	0·57	1·51	0·99	0·10	0·31	0·10	0·62
Wolstanton United	22645	25945	4·7	32·9	14·9	136	1·42	..	0·54	..	0·27	0·15	..	0·07	..	0·38	0·84	0·65	2·04	1·31	..	0·38	0·07	0·42
Totals and Averages	682503	733452	7·5	32·0	15·9	153	2·00	..	0·62	0·10	0·32	0·17	..	0·12	..	0·66	0·87	0·63	1·62	1·25	0·02	0·21	0·17	0·64
76 large towns in England, average population.	..	205386	*	28·2	15·7	140	1·88	..	0·39	0·13	0·29	0·16	0·08			0·83	*	*	*	*	*	*	*	*

* Not given in Registrar General's Returns.

URBAN—continued.

District.	Registered Births.	Deaths from all causes.	Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																												
			Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fevers. Typhus.	Fevers. Enteric.	Fevers. Other Continued.	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tubercular Diseases.	Cancer. Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respirat'y Organs	Alcoholism. Cirrhosis of Liver.	Venereal Diseases	Premature Birth.	Diseases & Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	All other Causes.
Stoke-on-Trent	970	502	150	70	19	16	153	94	..	23	3	21	16	..	..	4	..	8	12	4	..	..	4	31	14	16	46	42	..	1	10	3	16	5	44	15	3	161
Stone	136	95	21	9	8	..	26	31	..	..	..	..	10	..	..	..	..	..	2	4	..	..	..	6	3	2	9	1	..	3	1	..	2	..	9	2	2	39
Tamworth	197	97	29	7	7	6	22	26	..	2	..	3	1	..	..	..	..	2	3	1	..	..	..	6	9	7	9	8	..	4	..	..	..	..	8	4	..	30
Tettenhall	116	54	6	1	3	1	18	25	..	..	..	..	..	..	..	..	..	2	1	1	..	..	1	2	1	6	8	4	..	..	1	..	..	..	5	2	..	20
Tipton	1072	475	142	105	17	15	105	91	..	49	..	1	9	..	..	6	..	10	35	5	..	1	1	18	11	17	39	41	1	..	5	..	14	2	25	14	3	168
Tunstall	998	528	200	105	13	14	127	69	..	..	9	9	2	3	..	2	..	..	25	5	..	2	..	26	29	10	58	50	2	3	5	..	16	4	30	10	1	227
Uttoxeter	165	75	24	3	3	1	21	23	..	..	..	..	1	..	..	..	..	..	3	1	..	..	..	3	1	4	7	3	..	2	3	..	5	4	7	2	..	29
Wednesbury	871	407	126	73	21	7	103	77	..	30	..	8	9	..	..	8	..	8	17	3	..	..	..	29	5	11	47	28	..	..	1	3	17	3	25	11	1	143
Wednesfield	249	87	36	11	6	..	21	13	..	1	..	..	1	..	..	..	..	..	4	5	..	..	..	3	9	1	8	6	..	..	..	..	8	1	10	4	..	26
Willenhall	591	295	85	43	15	17	77	58	..	..	4	11	2	1	..	1	1	3	3	7	..	..	..	20	14	11	29	19	2	6	2	2	12	..	16	11	1	117
Wolstanton United	856	388	117	55	5	17	117	77	..	14	..	7	4	..	..	2	..	5	10	2	..	1	1	22	15	17	53	34	..	10	2	3	11	1	35	12	1	126
Totals	23532	11686	3609	1754	438	410	3182	2293	..	459	77	238	125	19	..	87	2	119	476	213	19	13	36	643	386	464	1194	920	17	159	131	34	475	93	877	342	47	4021

RURAL.

District.	Population at all ages. Census, 1901.	Population at all ages. Estimated to middle of 1905.	Mean area per person per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population. Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Fevers. Typhus.	Enteric.	Other Continued.	Diarrhœa.	Phthisis.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Premature Birth.
Blore Heath..	2141	2110	6·4	22·7	9·0	20	0·94	..	..	0·47	0·47	..	..	..	..	..	0·47	..	..	0·94	..	..	..	..
Cannock.....	17861	19140	2·6	28·1	11·8	98	1·09	..	0·78	..	0·15	0·10	..	..	..	0·05	0·31	0·62	0·94	0·99	..	0·10	0·05	0·47
Cheadle.....	24657	24657	2·1	27·9	13·2	107	0·73	..	0·04	0·24	0·16	0·12	..	0·04	..	0·12	0·97	0·56	0·81	1·05	0·08	..	0·20	0·40
Eccleshall....	5594	5595	5·8	22·8	12·8	117	0·53	..	..	0·17	0·17	0·17	..	..	..	..	0·53	1·28	0·89	0·71	0·17	..	0·53	0·71
Gnosall.....	4697	4700	5·5	24·8	15·5	102	0·21	..	..	..	0·21	..	..	..	..	..	1·27	2·12	1·91	1·48	..	0·21	0·42	0·42
Kingswinford.	19536	19990	0·2	31·5	14·9	126	1·30	..	0·75	0·05	0·15	0·15	..	0·10	..	0·10	0·55	0·65	2·15	0·80	0·05	0·10	0·10	0·55
Leek.....	13873	14269	4·7	27·9	15·9	102	1·68	..	0·56	0·14	0·07	0·77	..	..	..	0·14	0·77	0·42	0·70	1·05	0·07	..	0·07	0·35
Lichfield.....	*25688	*26084	2·3	27·5	13·3	107	0·65	..	0·11	0·15	0·11	0·11	..	..	..	0·15	0·53	0·72	1·18	1·18	0·07	0·23	0·11	0·53
Mayfield.....	4054	4150	5·8	21·4	13·0	101	0·96	..	..	0·24	..	0·72	..	..	..	..	0·96	0·24	0·96	0·48	..	..	..	0·48
Newcastle....	6513	6784	2·8	21·6	12·3	129	2·06	..	0·44	0·44	0·14	0·88	..	..	..	0·14	0·29	0·88	1·17	0·58	..	..	0·14	0·14

* Not including 1000 Inmates of Burntwood Asylum.

RURAL—continued.

District.	Registered Births.	Deaths from all causes.	Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																														
			Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fevers. Typhus.	Fevers. Enteric.	Fevers. Other Continued.	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tubercular Diseases.	Cancer. Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respirat'y Organs	Alcoholism. Cirrhosis of Liver.	Venereal Diseases	Premature Birth.	Diseases & Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	All other Causes.
Blore Heath..	48	19	1	4	..	2	5	7	..	..	1	1	..	..	..	..	..	1	..	..	1	..	..	1	..	..	..	2	..	..	..	..	..	..	6	3	..	3
Cannock.....	538	226	53	33	8	5	57	70	..	15	..	3	2	..	..	..	..	1	1	1	..	1	..	6	..	12	18	19	..	2	1	..	9	..	19	6	..	110
Cheadle.....	689	326	74	24	17	10	99	102	..	1	6	4	3	2	..	1	..	17	3	5	1	..	..	24	10	14	20	26	2	..	5	4	10	3	56	8	2	99
Eccleshall....	128	72	15	5	4	2	22	24	..	..	1	1	1	..	..	..	..	2	..	..	..	..	..	3	3	7	5	4	1	..	3	..	4	..	6	2	..	29
Gnosall.....	117	73	12	4	1	2	24	30	..	..	..	1	..	..	..	..	..	1	..	2	..	..	..	6	..	10	9	7	..	1	2	..	2	..	7	5	1	19
Kingswinford.	631	299	80	28	16	15	78	82	..	15	1	3	3	1	..	2	..	..	2	11	..	1	4	11	5	13	43	16	1	2	2	..	11	2	25	5	3	117
Leek.....	399	228	41	23	17	18	64	65	..	8	2	1	11	..	..	..	..	7	2	4	2	..	1	11	9	6	10	15	1	..	1	1	5	5	13	11	7	95
Lichfield.....	719	348	77	27	14	13	103	114	..	3	4	3	3	2	..	..	..	10	4	11	3	1	2	14	6	19	31	31	2	6	3	..	14	4	32	12	3	125
Mayfield.....	89	54	9	2	5	4	16	18	..	..	1	..	3	..	..	..	..	1	..	..	1	..	..	4	1	1	4	2	..	..	..	..	2	..	4	3	..	27
Newcastle....	147	84	19	12	5	4	16	28	..	3	3	1	6	1	..	..	..	..	1	..	..	..	..	2	..	6	8	4	..	..	1	..	1	2	6	6	..	33
Seisdon.....	346	187	24	11	8	8	66	70	..	..	1	2	1	..	..	..	..	..	3	3	..	..	..	6	3	15	18	11	1	..	4	..	8	..	17	14	1	79

RURAL—continued.

District.	Population at all ages. Census, 1901.	Population at all ages. Estimated to middle of 1905.	Mean area per person per acre.	Birth-rate per 1000 of population.	General mortality per 1000 of population.	Mortality in children under one year per 1000 registered births.	General zymotic mortality per 1000 of population.	Individual zymotic mortality per 1000 of population. Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Fevers. Typhus.	Fevers. Enteric.	Fevers. Other Continued.	Diarrhœa.	Phthisis.	Cancer, Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs.	Alcoholism. Cirrhosis of Liver.	Premature Birth.
Seisdon	12897	13578	2·6	25·4	13·7	69	0·51	..	..	0·07	0·14	0·07	..	..	..	0·22	0·44	1·10	1·32	0·81	0·07	..	0·29	0·58
Stafford	10407	10780	4·8	24·3	13·5	98	0·55	..	0·09	..	0·18	0·09	..	0·09	..	0·09	1·02	0·27	0·64	0·83	..	0·18	0·37	0·27
Stoke-on-Trent	4808	5013	0·8	29·1	11·7	150	1·19	..	..	..	0·19	0·19	..	..	..	0·79	0·19	0·19	1·39	1·79	..	..	..	0·59
Stone	8365	8600	4·2	23·6	14·5	108	0·69	..	..	0·11	0·34	0·23	..	..	..	..	0·93	0·34	0·69	1·74	0·11	0·93	..	0·69
Tamworth.. Staffs. portion	4800	4817	4·5	27·4	13·7	106	2·07	..	..	0·83	..	0·83	..	..	..	0·41	0·62	0·43	1·45	..	0·20	0·20	0·20	0·62
Tutbury	9137	9145	2·7	27·2	12·2	92	Nil	..	..	..	..	..	..	..	..	..	0·32	0·76	1·42	0·87	..	..	0·21	0·32
Uttoxeter	8128	8300	5·8	23·7	13·0	126	0·60	..	0·12	..	..	0·36	..	..	..	0·12	0·72	0·96	0·84	1·08	..	..	0·36	0·96
Walsall	10290	10854	1·1	31·5	13·7	116	1·01	..	0·46	..	0·27	..	..	..	..	0·27	1·01	0·55	1·93	1·28	0·09	0·18	..	0·92
Totals and Averages	193446	198566	3·0	27·1	13·5	107	0·91	..	0·26	0·12	0·14	0·22	..	0·02	..	0·13	0·65	0·66	1·17	1·01	0·05	0·12	0·65	0·51

RURAL—continued.

District.	Registered Births.	Deaths from all causes.	Deaths from all causes at subjoined ages.						Deaths from subjoined causes.																												
			Under 1 year.	1 and under 5.	5 and under 15.	15 and under 25.	25 and under 65.	65 and upwards.	Smallpox.	Measles.	Scarlet Fever.	Whooping Cough.	Diphtheria and Membranous Croup.	Croup.	Fevers. Typhus.	Fevers. Enteric.	Fevers. Other Continued.	Epidemic Influenza.	Diarrhœa.	Enteritis.	Puerperal Fever.	Erysipelas.	Other Septic Diseases.	Phthisis.	Other Tubercular Diseases.	Cancer. Malignant Disease.	Bronchitis.	Pneumonia.	Pleurisy.	Other Diseases of Respiratory Organs	Alcoholism. Cirrhosis of Liver.	Venereal Diseases	Premature Birth.	Diseases & Accidents of Parturition.	Heart Diseases.	Accidents.	Suicides.	All other Causes.
Stafford	263	146	26	10	5	8	44	53	..	1	..	2	1	..	..	1	..	..	1	..	..	1	..	11	3	3	7	9	..	2	4	..	3	2	8	7	..	80
Stoke-on-Trent	146	59	22	8	2	1	13	13	..	..	..	1	1	..	..	..	..	..	4	..	1	..	1	1	1	1	7	9	..	..	..	..	3	1	5	1	1	21
Stone	203	125	22	14	5	3	28	53	..	..	1	3	2	..	..	..	..	..	..	..	..	..	..	8	..	3	6	15	1	8	..	..	6	..	13	3	4	52
Tamworth (Staffs. portion)	132	66	14	6	9	1	14	22	..	..	4	..	4	..	..	..	..	1	2	1	..	1	..	3	3	2	7	..	1	1	1	..	3	..	5	2	1	24
Tutbury	249	112	23	5	6	6	41	31	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	3	3	7	13	8	..	..	2	..	3	..	8	7	..	56
Uttoxeter	197	108	25	8	7	4	31	33	..	1	..	..	3	..	..	..	..	..	1	3	2	..	..	6	..	8	7	9	..	..	3	..	8	..	10	..	..	47
Walsall	342	149	40	26	3	9	38	33	..	5	..	3	..	..	..	..	..	..	3	1	..	..	..	11	4	6	21	14	1	2	..	..	10	..	14	7	..	47
Totals	5383	2681	577	250	132	115	759	848	..	52	25	29	44	6	..	4	..	41	27	43	11	6	8	131	51	133	234	201	11	24	32	5	102	19	254	102	23	1063

Table showing Result of the Working of the Compulsory Notification of Infectious Diseases Act.

NOTE.—Cases of Measles and Whooping Cough are only given when these are included in the diseases compulsorily notified. Small-pox, Scarlet Fever, Diphtheria, and Fevers alone are included in the percentage calculation of hospital cases.

Hospitals exist in those districts against which an asterisk is placed.

URBAN.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
AMBLECOTE.*	Cases	Under 5	..	2											
		5 & upwards	..	..	..	..	..	..	..	..	..	..	6		
3,313.	Deaths	Under 5													
		5 & upwards													
6/-	Cases treated in hospital	Under 5													
Nil.		5 & upwards													
AUDLEY.*	Cases	Under 5	..	40	2										
		5 & upwards	..	26	1	..	..	1	..	..	..	..	3		
13,800.	Deaths	Under 5	..	..	1	..	..	..	..	..	..	..	..	11	10
		5 & upwards	..	2	1	..	..	1	..	..	..	..	..	..	1
13/3.	Cases treated in hospital	Under 5													
Nil.		5 & upwards													
BIDDULPH.*	Cases	Under 5	..	3	4										
		5 & upwards	..	8	13	..	..	..	..	..	1	..	1		
6,656.	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	3	3
		5 & upwards	..	..	1										
11/3.	Cases treated in hospital	Under 5 / 5 & upwards	..	..	11										
39·2.															

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
BILSTON.*	Cases	Under 5	..	12	3	1	..	1	..	..	..	..	2		
		5 & upwards	..	38	1	..	..	11	..	..	..	..	28		
24,300.	Deaths	Under 5	..	..	1		..	..	..	..	..	..	..	1	2
9/11		5 & upwards	..	..	..		..	3							
28·7.	Cases treated in hospital	Under 5 / 5 & upwards	..	19											
BRIERLEY HILL.*	Cases	Under 5	..	8	2	3									
		5 & upwards	..	9	4	..	..	2	..	..	1	..	4		
12,822.	Deaths	Under 5	..	..	2		..	..	..	..	..	..	..	11	
6/5.		5 & upwards	..	1	..		..	..	..	.	..	..	...	1	
12·0.	Cases treated in hospital	Under 5 / 5 & upwards	..	2	..	..	..	1							
BROWNHILLS.*	Cases	Under 5 / 5 & upwards	..	59	3	..	..	1	..	..	2	..	21		
17,004.	Deaths	Under 5	..	1	3		..	..	..	..	..	..	1	2	7
12/7.		5 & upwards	..	..	1		..	..	..	..	2				
Nil.	Cases treated in hospital	Under 5 / 5 & upwards													
BURSLEM.*	Cases	Under 5	..	110	28	..	..	1	..	..	..	..	1		
		5 & upwards	..	129	52	..	..	28	..	..	6	..	13		
41,622.	Deaths	Under 5	..	11	8		..	..	..	..	..	..	..	11	18
£1 2s. 1d.		5 & upwards	..	3	5		..	6	..	..	3	..	..	..	2
24·1.	Cases treated in hospital	Under 5 / 5 & upwards	..	47	18	..	..	19							

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
CANNOCK.*	Cases	Under 5	..	94	..	2	..	1	..	..	..	..	4		
		5 & upwards	..	160	4	1	..	11	..		10	..	41		
24,000.	Deaths	Under 5	..	3	1		..	..	..	..	..	..	1	30	3
£1 14s. 1d.		5 & upwards	..	2	1		..	3	..	..	3	..	2	2	
Nil.	Cases treated in hospital	Under 5													
		5 & upwards													
COSELEY.	Cases	Under 5	..	49	3	1	..	1	..	..	..	..	3		
		5 & upwards	..	51	9	1	..	23	..	..	1	..	15		
22,250.	Deaths	Under 5	..	1	..		..	..	..	..	..	..	1	18	7
17/7.		5 & upwards	..	6	1		..	4	..	..	1	..	1	1	
Nil.	Cases treated in hospital	Under 5													
		5 & upwards													
DARLASTON.*	Cases	Under 5	..	18	3	4	..	3	..	..	..	..	2		
		5 & upwards	..	15	4	..	..	27	..	..	..	..	15		
15,660.	Deaths	Under 5	..	..	4		..	..	..	..	..	..	..	15	2
14/6.		5 & upwards	..	..	..		..	8							
Nil.	Cases treated in hospital	Under 5													
		5 & upwards													
FENTON.*	Cases	Under 5	..	13	19	3	..	1							
		5 & upwards	..	32	59	1	..	21	..	1	4	..	7		
25,529.	Deaths	Under 5	..	..	8		..	..	..	..	..	..	..	17	19
15/9.		5 & upwards	..	1	..		..	5	..	1	3				
47·5.	Cases treated in hospital	Under 5 / 5 & upwards	..	28	38	1	..	3	..	..	..	..	1		

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
HANDSWORTH.* 65,249. 7/11. 28·4.	Cases	Under 5	..	33	10	1	..	1							
		5 & upwards	..	94	22	..	..	9	..	..	1	..	37		
	Deaths	Under 5	..	1	3		..	..	..	..	..	..	..	8	4
		5 & upwards	..	2	1		..	2							
	Cases treated in hospital	Under 5 / 5 & upwards	..	48											
HEATH TOWN.* 10,741. 11/7 67·4.	Cases	Under 5	..	13	4										
		5 & upwards	..	17	3	..	..	6	..	..	1	..	6		
	Deaths	Under 5	..	1	1		..	..	..	..	..	..	..	12	3
		5 & upwards	..	..	..		..	2							
	Cases treated in hospital	Under 5 / 5 & upwards	..	22	4	..	..	3							
KIDSGROVE. 8,703. £1 1s. 10d. 16·1.	Cases	Under 5 / 5 & upwards	..	34	29	..	..	5	..	..	..	..	8		
	Deaths	Under 5	..	..	2		..	..	..	..	..	..	..	3	3
		5 & upwards	..	1			..	2							
	Cases treated in hospital	Under 5 / 5 & upwards	..	4	7										
LEEK.* 16,150. £1 12s. 6d. 81·3.	Cases	Under 5	..	17	23										
		5 & upwards	..	50	98	..	..	5	..	..	..	..	17		
	Deaths	Under 5	..	..	3		..	..	..	..	..	..	..	1	
		5 & upwards	..	..	1		..	3							
	Cases treated in hospital	Under 5 / 5 & upwards	..	51	104	..	..	2							

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
LICHFIELD.*	Cases†	Under 5													
		5 & upwards	..	2	..	..	..	..	..	..	..	..	11		
7,902.	Deaths	Under 5													
		5 & upwards													
9/6.	Cases treated in hospital	Under 5 / 5 & upwards	..	2											
100·0.															
LONGTON.*	Cases	Under 5	..	11	23	2	..	4	..	..	..	..	3		
		5 & upwards	..	35	39	..	..	22	..	..	5	..	19		
35,912.	Deaths	Under 5	..	..	5		..	..	..	..	..	..	..	13	19
		5 & upwards	..	..	3			4	..	..	1				
11/4.	Cases treated in hospital	Under 5 / 5 & upwards	..	26	29										
26·1.															
NEWCASTLE.*	Cases	Under 5 / 5 & upwards	..	138	11	..	..	33	..	..	2	..	11		
20,500.	Deaths	Under 5	..	3	2		..	..	..	..	..	..	..	41	10
		5 & upwards	..	1	2		..	6	..	..	..	..	..	3	
£1 3s. 9d.	Cases treated in hospital	Under 5 / 5 & upwards	..	55	1	..	..	10							
36·2.															
PERRY BARR.*	Cases	Under 5	..	3											
		5 & upwards	..	16	..	..	..	..	..	..	..	..	2		
2,390.	Deaths	Under 5													
		5 & upwards	..	2											
£1 1s. 11d.	Cases treated in hospital	Under 5 / 5 & upwards	..	12											
63·1.															

† Chicken-pox, 17 cases.

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
QUARRY BANK.*	Cases	Under 5	..	52	1										
		5 & upwards	..	41	..	..	..	2	..	..	..	..	6		
6,994.	Deaths	Under 5	..	..	1		..	..	..	..	..	..	..	3	2
£1 16s. 5d.		5 & upwards	..	..	..		..	..	..	..	..	..	1	..	1
2·0.	Cases treated in hospital	Under 5 / 5 & upwards	..	2											
ROWLEY REGIS.*	Cases	Under 5	..	53	5	..	..	1	..	..	..	..	1		
		5 & upwards	..	80	6	..	..	6	..	..	1	..	31		
36,900.	Deaths	Under 5 / 5 & upwards	..	3	1		..	1	..	..	..	..	..	17	14
12/5.			..	2	1		..	2							
Nil.	Cases treated in hospital	Under 5 / 5 & upwards	..												
RUGELEY.	Cases	Under 5	..	3	4										
		5 & upwards	..	6	14	..	..	..	..	..	..	..	2		
4,450.	Deaths	Under 5 / 5 & upwards	..	..	..	..	..	..	..	..	..	..	..	4	
16/3.															
Nil.	Cases treated in hospital	Under 5 / 5 & upwards													
SEDGLEY.*	Cases	Under 5 / 5 & upwards	..	35	18	8	..	5	..	..	1	..	21		
16,050.	Deaths	Under 5	..	2	2		..	..	..	..	..	..	..	24	4
13/8		5 & upwards	..	..	..		..	2	..	..	..	..	..	1	
Nil.	Cases treated in hospital	Under 5 / 5 & upwards													

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
SHORT HEATH. 3,783. 9/3. Nil.	Cases	Under 5	..	3											
		5 & upwards	..	11											
	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	3
		5 & upwards													
	Cases treated in hospital	Under 5													
		5 & upwards													
SMALLTHORNE. 12,650. £1 19s. 11d. 4·1.	Cases	Under 5	..	50	16										
		5 & upwards	..	74	46	..	..	6	..	..	2	..	8		
	Deaths	Under 5	..	4	2		..	..	..	..	..	..	..	32	4
		5 & upwards	..	..	1		..	2							
	Cases treated in hospital	Under 5	..	1	4	..	..	3							
		5 & upwards													
SMETHWICK.* 63,000. 11/-. Nil.	Cases	Under 5	..	51	5	..	..	..	..	..	..	..	1		
		5 & upwards	..	108	34	..	..	23	..	..	4	..	52		
	Deaths	Under 5	..	3	1		..	..	..	..	..	..	1	39	25
		5 & upwards	..	4	..		..	6	..	..	3	..	..	3	3
	Cases treated in hospital	Under 5													
		5 & upwards													
STAFFORD.* 21,268. 7/-. 58·3.	Cases	Under 5	..	7	..	..	..	..	..	..	..	..	22		
		5 & upwards	..	17	6	..	..	6	..	..	2	..			
	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	13	8
		5 & upwards	..	1	..	..	..	1	..	..	3				
	Cases treated in hospital	Under 5	..	21											
		5 & upwards													

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
STOKE-ON-TRENT.* 33,688. £1 0s. 0d. 51·5.	Cases†	Under 5		32	28	1	..	2	..	..	..	..	3		
		5 & upwards	..	76	61	..	..	32	..	..	5	..	31		
	Deaths	Under 5	..	..	10		..	..	..	..	..	..	..	23	21
		5 & upwards	..	3	6		..	4							
	Cases treated in hospital	Under 5 / 5 & upwards	..	55	47	..	..	17							
STONE.* 5,720. £2 13s. 9d. 25·4.	Cases	Under 5 / 5 & upwards	.	51	66	..	..	1	..	..	1	..	4		
	Deaths	Under 5	..	..	4										
		5 & upwards	..	..	6										
	Cases treated in hospital	Under 5 / 5 & upwards	..	14	16										
TAMWORTH.* 7,550. £1 8s. 5d. 50·9.	Cases†	Under 5	..	11	4										
		5 & upwards	..	26	13	..	..	1	..	..	1	..	2		
	Deaths	Under 5	..	..	..		..	..	..	..	..	..	..	2	3
		5 & upwards	..	..	1										
	Cases treated in hospital	Under 5 / 5 & upwards	..	27	..	..	..	1							
TETTENHALL.* 5,422. 14/3. 73·0.	Cases	Under 5	..	9											
		5 & upwards	..	14	3	..	..	..	..	..	..	..	5		
	Deaths	Under 5 / 5 & upwards													
	Cases treated in hospital	Under 5 / 5 & upwards	..	19											

† Chicken-pox, 28 cases.

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
TIPTON.*	Cases	Under 5	..	19	3	8	..	7	..	..	..	..	5		
		5 & upwards	..	40	21	4	..	45	..	..	2	..	31		
31,250.	Deaths	Under 5	..	..	6		..	..	..	..	..	..	..	47	1
14/9.		5 & upwards	..	..	3		..	6	..	..	..	..	1	2	
28·1.	Cases treated in hospital	Under 5 / 5 & upwards	..	16	..	..	..	22							
TUNSTALL.*	Cases	Under 5	..	68	17	4	..	..	..	..	..	..	1		
		5 & upwards	.	58	37	..	..	6	..	..	2	..	19		
27,350.	Deaths	Under 5	..	8	2		..	1	..	..	..	..	..	..	9
19/4		5 & upwards	..	1	..		..	1	..	..	..	..	2		
9·1.	Cases treated in hospital	Under 5 / 5 & upwards	..	31	13	..	..	3							
UTTOXETER.	Cases	Under 5	..	1											
		5 & upwards	..	1	1	1	..	..	..	..	..	..	1		
5,350.	Deaths	Under 5													
2/4.		5 & upwards	..	..	..	1									
Nil.	Cases treated in hospital	Under 5 / 5 & upwards													
WEDNESBURY.*	Cases	Under 5 / 5 & upwards	..	82	75	1	..	24	..	..	2	..	33		
26,700.	Deaths	Under 5	..	..	5		..	.	..	..	..	..	..	29	7
£1 0s. 3d.		5 & upwards	..	..	4		..	8	..	..	..	..	..	1	1
Nil.	Cases treated in hospital	Under 5 / 5 & upwards													

URBAN—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
WEDNESFIELD.* 5,700. 19/3. 2·5.	Cases	Under 5	..	36	4	..	..	..	..	..	..	..	4		
		5 & upwards													
	Deaths	Under 5	..	..	1	..	..	..	..	..	..	..	..	1	
		5 & upwards													
	Cases treated in hospital	Under 5	..	1											
		5 & upwards													
WILLENHALL.* 19,179. 9/7. Nil.	Cases	Under 5	..	12	4	..	..	..	..	..	..	..	1		
		5 & upwards	..	30	8	..	..	3	1	..	1	..	14		
	Deaths	Under 5	..	..	1		..	..	..	..	..	..	..	..	11
		5 & upwards	..	4	1		..	1							
	Cases treated in hospital	Under 5													
		5 & upwards													
WOLSTANTON.* 25,945. 18/7. 35·8.	Cases	Under 5	..	51	12	2	..	2		..	..	..	1		
		5 & upwards	..	69	30	..	..	9	..	..	1	..	16		
	Deaths	Under 5	..	..	3		..	1	..	..	..	..	..	13	7
		5 & upwards	..	..	1			1	..	..	..	..	1	1	
	Cases treated in hospital	Under 5	..	46	10	..	..	6							
		5 & upwards													

RURAL.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
BLORE HEATH.* 2,110. 11/10. 22·2.	Cases	Under 5	..	3											
		5 & upwards	..	5	..	..	..	1	..	..	1				
	Deaths	Under 5	..	1	..	..	..	..	..	..	..	..	..	..	1
		5 & upwards	..	..	..	..	..	..	..	..	1				
	Cases treated in hospital	Under 5 / 5 & upwards	..	2											
CANNOCK.* 19,140. 10/3. 75·4.	Cases	Under 5	..	10	3										
		5 & upwards	.	32	7	..	..	1	..	..	..	.	26		
	Deaths	Under 5	..	..	1		..	..	..	..	..	..	..	15	3
		5 & upwards	..	..	1		..	..	..	..	..	..	1		
	Cases treated in hospital	Under 5 / 5 & upwards	..	35	5										
CHEADLE.* 24,657. 16/5. 52·4.	Cases	Under 5 / 5 & upwards	3	93	42	..	..	7	..	..	2	..	15		
	Deaths	Under 5	..	2	1		..	1	..	..	..	..	..	1	4
		5 & upwards	..	4	2		..	..	..	..	1				
	Cases treated in hospital	Under 5 / 5 & upwards	3	60	10	..	.	3							
ECCLESHALL.* 5,595. 5/4. 16·6.	Cases	Under 5	..	2											
		5 & upwards	..	8	1	..	..	1							
	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	1
		5 & upwards	..	1	1										
	Cases treated in hospital	Under 5 / 5 & upwards	..	2											

RURAL—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
GNOSALL.	Cases	Under 5	..	1											
4,700.		5 & upwards	..	13	..	..	..	..	..	..	..	..	2		
8/6.	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	1
Nil.		5 & upwards													
	Cases treated in hospital	Under 5													
		5 & upwards													
KINGSWINFORD.*	Cases	Under 5	..	6	1	..	..	.	..	..	..	..	3		
19,990.		5 & upwards	..	7	4	..	..	12	..	..	..	..	6		
4/10.	Deaths	Under 5	..	1	2		..	..	..	..	..	..	..	15	3
56·6.		5 & upwards	..	..	1		..	2	..	..	..	..	1		
	Cases treated in hospital	Under 5 / 5 & upwards	..	8	..	..	..	9							
LEEK.*	Cases	Under 5	..	22	14	1	..	1							
14,269.		5 & upwards	..	34	48	..	..	4	..	..	3	..	5		
£1 3s. 1d.	Deaths	Under 5 / 5 & upwards	..	1	5		..	..	..	..	..	..	..	8	1
30·9.			..	1	6		..	..	..	..	2				
	Cases treated in hospital	Under 5 / 5 & upwards	..	38											
LICHFIELD.*	Cases	Under 5	..	39	4										
27,084.		5 & upwards	..	86	17	..	..	4	..	..	3	..	15		
15/6	Deaths	Under 5	..	1	2		..	..	..	..	..	..	..	3	3
22·6.		5 & upwards	..	3	1		..	..	..	..	3	..	1		
	Cases treated in hospital	Under 5 / 5 & upwards	..	30	4										

RURAL—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
MAYFIELD. 4,150. 15/8. Nil.	Cases	Under 5	..	2											
		5 & upwards	..	13	5	..	..	..	..	..	2	..	4		
	Deaths	Under 5	..												
		5 & upwards	..	1	3		..	..	..	..	1				
	Cases treated in hospital	Under 5													
		5 & upwards													
NEWCASTLE. 6,784. 11/9. Nil.	Cases	Under 5	..	6	3										
		5 & upwards	..	16	6	..	..	..	..	..	.	..	1		
	Deaths	Under 5	..	2	3		..	..	..	..	..	..	..	3	1
		5 & upwards	..	1	3										
	Cases treated in hospital	Under 5													
		5 & upwards													
SEISDON.* 13,578. 16/9. 91·1.	Cases	Under 5	..	14	..	..	..	..	..	..	..	..	1		
		5 & upwards	..	61	2	..	..	2	..	..	..	..	11		
	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	2
		5 & upwards	..	1	1										
	Cases treated in hospital	Under 5 / 5 & upwards	..	72											
STAFFORD.* 10,780. 8/9. 52·6.	Cases	Under 5 / 5 & upwards	..	14	13	..	..	11							
	Deaths	Under 5	.		..	..	..	..	..	..	..	..	..	1	2
		5 & upwards	..	..	1	..	..	1	..	..	..	..	1		
	Cases treated in hospital	Under 5 / 5 & upwards	..	14	6										

RURAL—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of Cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
STOKE-ON-TRENT.*	Cases	Under 5	..	9	6										
		5 & upwards	1	16	15	..	..	2	..	..	1	..	2		
5,013.	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	..	1
£1 5s. 11d.		5 & upwards	..	..	1	..	..	..	..	..	1				
38·7.	Cases treated in hospital	Under 5 / 5 & upwards		19											
STONE.*	Cases	Under 5 / 5 & upwards	..	26	25	..	..	1	..	..	1	..	2		
8,600.	Deaths	Under 5	..	..	1		..	..	..	..	..	..	..	..	3
15/11.		5 & upwards	..	1	1										
19·2.	Cases treated in hospital	Under 5 / 5 & upwards	..	6	4										
TAMWORTH.*	Cases†	Under 5	..	14	..										
		5 & upwards	..	42	6	..	..	..	..	..	..	..	4		
4,817.	Deaths	Under 5	..	2											
£1 14s. 9d.		5 & upwards	..	2	4		..	..	..	..	..	..	1		
69·3.	Cases treated in hospital	Under 5 / 5 & upwards	..	43											
TUTBURY.*	Cases	Under 5	..	..	1										
		5 & upwards	..	2	2	..	..	..	..	..	1	..	5		
9,145.	Deaths	Under 5													
3/-.		5 & upwards	..	..	..	..	..	..	..	..	..	..	1		
20·0.	Cases treated in hospital	Under 5 / 5 & upwards	..	1											

† Chicken-pox 1 Case.

RURAL—continued.

District, Population, Cost of Notification per 1000 of Population, Percentage of cases treated in Hospital.			Smallpox.	Scarlatina.	Diphtheria.	Membranous Croup.	Typhus Fever.	Enteric Fever.	Continued Fever.	Relapsing Fever.	Puerperal Fever.	Cholera.	Erysipelas.	Measles.	Whooping Cough.
UTTOXETER. 8,300. 9/7. Nil.	Cases	Under 5	..	..	4										
		5 & upwards	..	4	16	..	..	..	..	..	2	..	6		
	Deaths	Under 5	..	..	..		..	..	..	..	..	..	..	1	
		5 & upwards	..	.	3		..	..	..	..	2				
	Cases treated in hospital	Under 5													
		5 & upwards													
WALSALL. 10,854. 7/4. Nil.	Cases	Under 5	.	8											
		5 & upwards	..	17	1	..	..	..	..	..	..	..	6		
	Deaths	Under 5	..	..	..	..	..	..	..	..	..	..	..	5	3
		5 & upwards													
	Cases treated in hospital	Under 5													
		5 & upwards													

Summary of Sanitary Inspectors' Work.

URBAN.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Amblecote. 3,313.	Inspections & observations made	6	4	..	..	..	3	3	3	3	..	23	1	6	5	..	..		6	6	..	2	5	76												
	Formal notices by authority	6	4	..	..	..	..	3	..	.	..	23	1	6	5	..	..	..	6	6	..	2	5	67												
	Nuisances abated after notice.....	6	4	..	..	..	..	3	..	..	.	20	1	6	5	..	..	..	6	6	..	2	5	64	..	..	..	..	..	..	12					
Audley. 13,800.	Inspections & observations made	1	..	3	5	..	..	3	..	..	..	26	1	..	15	3	21	..	3	.	..	4	1	86												
	Formal notices by authority	1	..	3	5	..	..	3	..	..	..	26	1	..	15	3	21	..	3	..	..	4	1	86												
	Nuisances abated after notice.....	1	..	3	5	..	..	3	.	..	..	26	1	..	15	3	21	..	3	..	..	4	1	86	.	..	..	..	..	..	1					
Biddulph. 6,656.	Inspections & observations made	95	89	1	..	..	..	56	36	16	.	115	9	..	59			35	31	2	..	..	..	544												
	Formal notices by authority	12	26	..	..	..	..	7	..	..	..	9	..	..	12			8	..	..	..	..	..	74												
	Nuisances abated after notice.....	12	26	..	..	..	..	7	..	..	..	9	..	..	12			8	..	..	..	..	..	74	..	..	..	..	..	12	20					
Bilston. 24,300.	Inspections & observations made	98	165	8	28	31	62	66	97	79	43	24368	17	..	..	..	27	..	98	..	..	..	101	25288												
	Formal notices by authority	16	..	..	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44												
	Nuisances abated after notice	114	165	8	28	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	315	1	..	..	..	..	..	Yes					
Brierley Hill 12,822.	Inspections & observations made	197	121	34	145	..	98		69	248	83	642	14	26	315			37	29	65	.	26	28	2177												
	Formal notices by authority	63	99	6	82		5		8	19	34	119	6	8	175			17	7	24	..	4	16	692												
	Nuisances abated after notice.....	58	88	6	79	..	5		7	19	34	83	6	8	166			15	7	24	..	3	14	622	..	..	..	..	..	12	38					

URBAN—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Brownhills. 17,004.	Inspections & observations made	5	2	1	1	..	*	*	*	*	61	3762	2	1	20	..	30	13	..	..	..	..	..	3898												
	Formal notices by authority	3	2	1	1	..	..	..	..	2	1	54	2	1	14	1	28	12	2	2	..	..	16	142												
	Nuisances abated after notice.....	3	2	1	1	..	..	..	..	2	1	54	2	1	12	1	28	12	2	2	..	..	16	140	..	..	..	13	12	2	56					
Burslem. 41,622.	Inspections & observations made	34	54	38	15	120	210	150	100	276	342	378	26	839	40	46	474	12	8	16	7	50	4804	8039												
	Formal notices by authority	17	27	19	9	..	6	..	4	3	46	189	13	439	20	23	237	6	4	8	3	4	115	1192												
	Nuisances abated after notice	17	27	19	3	..	6	..	4	3	46	189	13	439	20	23	237	6	4	8	1	4	115	1184	7	..	..	..	..	1975	250	9 † 2	..	..	2	2
Cannock. 24,000.	Inspections & observations made	..	..	10	..	60	20	80	44	779	48	3000	11	12	106			..	18		..	30	60	4278												
	Formal notices by authority	..	..	2	..	..	..	..	..	2	..	26	5	3	53			..	15		..	1	29	136												
	Nuisances abated after notice	..	..	2	..	..	..	..	.	2	..	26	5	3	53			..	15		..	1	29	136	1	..	..	..	..	10	50	4				
Coseley. 22,250.	Inspections & observations made	1468		28	97	..	73		34	25	272	346	8	..	..	..	121	97	13	9	..	.	8	2599												
	Formal notices by authority	199		3	46	..	10		5	3	24	29	5	..	..	..	39	97	12	7	..	..	8	487												
	Nuisances abated after notice	1324		3	113	..	7		8	3	18	29	5	..	..	..	39	97	8	7	..	..	8	1669	..	..	..	..	..	2	36	2				
Darlaston. 15,660.	Inspections & observations made	11	46	12	..	..	40	52	84	50	109	2910	4	..	56	67	..	..	..	3	..	..	..	3444												
	Formal notices by authority	11	46	12	..	..	.	1	2	.	5	..	4	..	21	67	..	..	..	3	..	.	..	172												
	Nuisances abated after notice.....	11	46	12	..	..	..	1	2	..	5	..	4	..	21	67	..	..	..	3	..	..	..	172	..	..	..	..	..	5	67					

* Periodically inspected at least 24 times per year. † Other premises.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Fenton. 25,529.	Inspections & observations made	87	9	5	4	..	132	49	23	44	85	167	4	215	15	37	254	8	..	9	..	..	19	1166												
	Formal notices by authority	26	3	2	1	..	..	2	..	..	2	41	2	93	6	12	98	2	..	4	..	..	8	302												
	Nuisances abated after notice.....	26	2	2	1	..	..	3	..	..	2	41	2	93	6	12	97	..	..	6	..	..	8	301	..	..	..	2	2	162	162	5				
Handsworth 65,249.	Inspections & observations made	301	402	68	..	..	261	71	131	123	..	1891	351	1503	681	139	1721	69	..	201	..	25	181	8119												
	Formal notices by authority	10	13	4	..	..	..	3	..	..	..	61	3	33	34	..	35	..	..	13	..	..	25	234												
	Nuisances abated after notice.....	84	133	15	.	..	4	19	30	16	..	192	94	495	178	30	646	28	..	44	..	3	47	2058	1	..	..	..	..	358	205	2				
Heath Town 10,741.	Inspections & observations made	200				.	30	16	24	27	..	64	3	..	11			13	60	12	10	..	..	470												
	Formal notices by authority	50				..	..	..	..	..	..	30	3	..	5			13	16	4	1	..	..	122												
	Nuisances abated after notice.....	50				..	..	..	..	..	..	25	3	..	5			9	12	4	1	..	..	109	..	..	..	13	13	2	40	3				
Kidsgrove. 8,703.	Inspections & observations made	13	2	4	..	..	25	42	16	27	80	237	2	5	4	1	6	1	3	..	..	..	..	468												
	Formal notices by authority	13	2	4	..	..	1	3	..	1	9	16	2	5	4	1	6	1	3	..	..	..	..	71												
	Nuisances abated after notice.....	13	2	4	..	..	1	3	..	1	9	16	2	5	4	1	6	1	3	..	..	..	..	71	..	..	..	..	..	4	66					
Leek. 16,150.	Inspections & observations made	2	68	2	5	208	12	31	42	12	8	118	..	28	26	31	56	..	..	..	..	4	522	1175												
	Formal notices by authority	2	68	2	5	1	..	..	2	1	..	118	..	28	26	31	56	..	..	..	..	4	522	866												
	Nuisances abated after notice.....	2	68	2	5	1	..	..	2	1	..	161	..	28	26	31	56	..	..	..	..	4	522	909	..	..	..	..	..	2844	147	4				

URBAN—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Lichfield. 7,902.	Inspections & observations made	..	..	..	..	30	40		25	30	..	109	7	35	95	17	60	15	24	3	..	..	17	507													
	Formal notices by authority	..	.	..	..	1	2		1	2	..	100	7	35	95	17	60	15	24	3	..	..	17	379													
	Nuisances abated after notice.....	..	..	..	..	1	2		1	1	..	95	7	35	90	15	55	15	14	3	..	..	17	351	..	..	..	..	..	11	11						
Longton. 35,912.	Inspections & observations made	268	128	41	..	38	242		197	176	..	176	14	189	7	23	289	13	4	6	..	6	161	1978													
	Formal notices by authority	268	128	41	..	38	79		34	11	..	177	14	203	7	23	289	13	4	6	..	1	161	1497													
	Nuisances abated after notice.....	247	111	41	..	15	17		57	11	..	112	14	152	7	23	262	13	3	6	..	1	99	1190	..	..	..	6	4	3177	156	13					
Newcastle. 20,500.	Inspections & observations made	44	20	5	36	45	70	30	100	400	6	158	3	25	27	5	32	1	13	13	1	..	24	1057													
	Formal notices by authority	44	20	5	39	..	..	1	2	..	3	158	3	25	27	5	32	1	13	13	1	..	24	416													
	Nuisances abated after notice.....	44	20	5	39	..	..	1	2	..	3	128	3	25	22	5	30	1	9	10	1	..	23	371	1	46	2	1	1	38	160	15					
Perry Barr. 2,390.	Inspections & observations made	.	..	2	..	..	..	..	..	..	..	..	..	.	3	2	20	4	..	..	..	..	1	32													
	Formal notices by authority	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2													
	Nuisances abated after notice.....	..	..	2	..	..	..		..	..	..	..	..	..	3	2	20	4	..	..	..	..	1	32	..	..	..	..	..	16	16						
Quarry Bank 6,994.	Inspections & observations made	106	106	16	35	..	50	50	35	40	..	1750	72	40	80	40	70	30	70	10	10	..	..	2610													
	Formal notices by authority	15	73	4	29	..	10	16	6	20	..	..	35	4	26	20	70	10	25	4	..	..	..	367													
	Nuisances abated after notice.....	15	70	4	29	..	10	16	6	20	..	..	35	4	25	17	68	7	25	4	2	..	..	357	..	..	..	10	5	52	69	3					

URBAN—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.
Rowley Regis 36,900.	Inspections & observations made	131	..	27	3	..	127	127	179	96	107	20642	32	1467	..	..	546	12	45	12	..	..	..	23553
	Formal notices by authority	86	..	24	2	..	..	..	..	..	5	82	5	37	..	..	43	2	12	7	..	..	..	305
	Nuisances abated after notice	65	..	18	2	..	..	..	..	..	2	24	5	26	..	..	39	..	12	6	..	..	..	199
Rugeley. 4,450.	Inspections & observations made	3	1	3	1	8	4	8	32	32	26	6	4	3	3	..	15	7	2	1	..	..	3	162
	Formal notices by authority	..	1	2	1	..	..	..	..	..	..	6	4	3	3	..	15	7	1	..	..	..	3	46
	Nuisances abated after notice	3	1	2	1	..	..	..	.	..	..	6	4	3	3	..	15	7	1	..	..	.	3	49
Sedgley. 16,050.	Inspections & observations made	123	96	25	67	..	..	67	25	64		181	22	..	153			5	..	46	..	..	..	874
	Formal notices by authority	23	28	6	8	..	..	7	..	..	..	25	2	..	25			..	..	7	..	..	..	131
	Nuisances abated after notice	43	30	7	11	..	..	15	..	4	..	65	6	..	63			..	..	11	..	..	..	255
Short Heath. 3,783.	Inspections & observations made	790				..	12	20	8	12	..	868	1	1	..	..	65	..	83	..	..	..	49	1909
	Formal notices by authority	..	3	2	2	..	..	..	..	..	..	3	..	..	..	..	5	..	3	..	..	..	4	22
	Nuisances abated after notice	..	3	1	..	..	..	..	..	..	..	1	..	..	..	..	5	..	2	..	..	..	4	16
Smallthorne 12,650.	Inspections & observations made	12	18	6	..	..	29	36	12	9	.	70	2	80	45	..	20	..	45	12	.	..	..	396
	Formal notices by authority	3	6	..	..		..	1	..	..	..	40	..	..	23	..	..	..	..	9	..	..	..	82
	Nuisances abated after notice	12	18	..	..	..	..	1	..	..	..	70	..	..	45	..	..		..	12	..	..	..	158

District and Population.		Food supply & water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Rowley Regis 36,900.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice	..	..	..	2	2	327	171					
Rugeley. 4,450.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice	.	..	..	3	3	..	24	2				
Sedgley. 16,050.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice												
Short Heath. 3,783.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice	2*	..	..	..	..	..	5					
Smallthorne 12,650.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice	..	..	..	..	..	6	Yes					

* 1 Prosecution and Conviction.

URBAN—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Smethwick. 63,000.	Inspections & observations made	14	6	3	..	..	497	40	120	57	420	2020	10	50	12	..	70	4	12	4	..	15	12	3366	1*	..	..	29	9	150	138					
	Formal notices by authority	7	5	..	..	..	..	..	..	..	11	300	..	14	8	..	24	..	..	..	..	6	4	379												
	Nuisances abated after notice.....	7	5	3	..	..	..	..	..	.	11	333	10	21	8	..	22	..	4	2	..	6	14	446												
Stafford. † 22,813.	Inspections & observations made	..	..	..	..	70	23	40	150	523	..	..	..	..	..	..	..	..	..	..	..	..	2809	5646												
	Formal notices by authority	..	57	9	9	..	..	..	..	..	..	4	3	14	29			3	1	7	1	2	97	236												
	Nuisances abated after notice	..	57	9	9	..	..	..	..	.	..	3	3	14	28			3	1	7	1	2	97	234	3	..	..	12	..	35	34					
Stoke-on-Trent. 33,688.	Inspections & observations made	19	33	4	20	124	163		79	86	310	168	3	28	15	17	87	5	1	2	38	3	..	1205												
	Formal notices by authority	19	33	4	20	..	26		4	..	42	163	3	28	15	17	87	5	1	2	..	2	..	471												
	Nuisances abated after notice	20	34	4	..	..	..		4	..	41	139	3	21	14	10	91	5	1	3	..	2	1	393	2	..	..	..	..	226	214	3	..	..	1	1
Stone 5,720.	Inspections & observations made	2	..	..	..	14	16		49	25	123	20	..	9	..	..	41	12	6	..	..	.	6	323												
	Formal notices by authority	1	..	..	..	1	..		5	1	4	9	..	3	..	..	19	5	3	..	..	..	2	53												
	Nuisances abated after notice.....	1	..	..	..	1	..		5	1	4	9	..	3	..	..	19	3	3	..	..	..	1	50	..	..	..	5	5	..	Several	2				
Tamworth. 7,550.	Inspections & observations made	72	81	15	9	189	16		15	30	..	312	28	..	350			..	45	31	7	8	86	1294												
	Formal notices by authority	27	31	10	2	29	5		2	14	..	32	6	..	85			..	17	23	3	2	43	331												
	Nuisances abated after notice.....	22	27	10	2	29	5		2	14	..	29	6	..	73			..	15	13	3	2	32	284	1§	..	..	..	..	..	32					

§ 238 lbs. fish. * 336 bad rabbits. † Including Public Institutions.

URBAN—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Tettenhall. 5,422.	Inspections & observations made	40	60	..	8	..	39	48	25	17	..	170	56	48	78	..	68	83	96	4	..	..	150	990												
	Formal notices by authority	18	28	..	3	..	13	16	10	8	..	83	22	16	36	..	33	41	13	2	..	..	75	417												
	Nuisances abated after notice.....	18	28	..	3	..	13	16	10	8	..	76	22	16	38	..	3	41	14	2	..	..	64	370	..	..	..	2	1	..	26					
Tipton. 31,250.	Inspections & observations made	132	132	7	10	..	45	84	120	96	130	288	14	6	8	6	5	5	4	4	2	1	12	1111												
	Formal notices by authority	132	132	7	10	..	..	4	..	..	..	144	14	6	8	6	5	5	4	4	2	1	12	496												
	Nuisances abated after notice.....	120	120	7	10	..	..	3	..	..	..	120	12	6	6	4	5	3	4	4	2	1	8	435	1	..	..	5	5	18	18	2				
Tunstall. 27,350.	Inspections & observations made	441	419	6	3	.	54	74	42	198	79	214	4	164	26	16	..	..	27	5	12	5	..	1789												
	Formal notices by authority	207	194	6	1	..	12	10	..	..	2	81	4	34	11	9	..	..	..	5	..	3	..	579												
	Nuisances abated after notice.....	394	384	6	3	..	12	10	..	..	2	207	4	139	26	16	..	..	.	5	..	5	..	1213	..	..	..	..	..	..	52	..	..	..	1	1
Uttoxeter. 5,350.	Inspections & observations made	..	20	6	..	170*	10	58	46	60	..	75	13	28	3	5	419	10	4	..	8	..	20	955												
	Formal notices by authority	..	..	2	..	..	..	..	.	1	..	6	1	5	..	3	43	2	1	..	..	..	2	66												
	Nuisances abated after notice.....	..	6	2	..	..	2	2	..	1	..	12	3	14	3	5	81	2	..	..	..	..	6	139	..	..	..	10	2	5	7					
Wednesbury 26,700.	Inspections & observations made	247	11	12	4	154	**		70	124	..	6320	5	97	93	.	52	..	..	15	..	..	60	7264												
	Formal notices by authority	28	11	12	4	3	..		4	..	..	124	5	33	36	..	32	..	..	2	..	..	32	326												
	Nuisances abated after notice.....	36	11	12	4	3	..		4	19	..	167	5	44	41	..	36	..	..	2	..	..	32	416	1	..	..	..	..	57	163					

* 150 Inspections made by Police. ** Inspected by Inspectors under the Contagious Diseases (Animals) Act.

URBAN—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Wednesfield. 5,700.	Inspections & observations made	1	4	3	..	..	..	15	..	18	..	172	..	97	..	..	19	104	21	..	..	..	..	454												
	Formal notices by authority	1	4	3	..	..	..	..	..	1	..	19	..	..	..	..	19	83	..	..	..	..	..	130												
	Nuisances abated after notice.....	1	4	3	..	..	..	..	..	1	..	19	..	..	..	..	19	83	..	..	..	..	..	130	*1	..	..	24	21							
Willenhall. 19,179.	Inspections & observations made	600				..	6	4	66	16	..	65	7	288	351			2	7	16	..	1	32	1461												
	Formal notices by authority	1	3	3	..	..	..	1	..	..	..	15	..	..	40			..	2	2	..	..	5	72												
	Nuisances abated after notice.....	1	3	3	..	..	..	..	..	..	..	5	..	..	31			..	2	2	..	..	5	52	*1	..	..	1	1	369	76	3				
Wolstanton. 25,945.	Inspections & observations made	17	15	5	2	..	82		26	138	..	14151	17	1060	156			.	6	6	..	7	15	15703												
	Formal notices by authority	17	15	5	2	..	9		1	4	..	211	17	7	156			..	6	6	..	1	15	472												
	Nuisances abated after notice.....	17	15	5	2	..	9		1	4	..	211	17	7	156			..	6	6	..	1	15	472	..	..	..	..	..	2	128	2				

* Prosecution and Conviction.

RURAL.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.
Blore Heath. 2,110.	Inspections & observations made	55	1	1	..	..	..	..	..	..	..	3	..	..	2	..	..	3	1	..	..	..	9	75
	Formal notices by authority	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Nuisances abated after notice.....	40	1	1	..	..	..	..	..	..	..	3	.	..	2	..	..	3	1	..	..	..	9	60
Cannock. 19,140.	Inspections & observations made	22	20	7	4	..	170		28	84	57	147	23	27	48	7	80	14	9	12	..	..	80	839
	Formal notices by authority	22	20	7	4	..	12		1	1	10	65	23	11	45	7	80	14	9	12	..	..	60	403
	Nuisances abated after notice.....	22	20	7	4	..	12		1	1	15	65	23	14	60	7	75	14	9	12	..		73	434
Cheadle. 24,657.	Inspections & observations made	..	7	3	..	10	5	102	41	27	47	7704	2	23	32	..	43	17	2	2	..	..	41	8128
	Formal notices by authority	..	..	2	..	..	..	..	..	..	6	..		..	..	..	.	4	..	..	..	..	..	12
	Nuisances abated after notice.....	..	7	3	..	..	..	15	..	..	5	..	2	..	32	..	..	17	2	2	..	..	..	85
Eccleshall. 5,595.	Inspections & observations made	3	6	3	2	2	57		9	7	..	15	59	..	..	..	17	2	3	3	..	..	..	188
	Formal notices by authority	3	2	3	2	..	3		1	1	..	9	43	..	..	..	12	2	3	3	..	..	..	87
	Nuisances abated after notice	3	2	2	2	..	2		1	1	..	6	38	..	..	..	9	2	3	3	..	..	..	74
Gnosall. 4,700.	Inspections & observations made	3	..	1	..	..	36		..	3	38	43	3	..	7	..	41	8	3	..	.	..	..	186
	Formal notices by authority	1	..	..	..	.	..		..	..	1	5	..	..	2	..	5	..	..	..	..	..	..	14
	Nuisances abated after notice.....	1	..	1	..	..	10		..	..	2	15	3	..	2	..	15	8	3	..	..	..	..	60

District and Population.		Food supply & water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Blore Heath. 2,110.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice.....	..	..	..	3	3	..	14	5				
Cannock. 19,140.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice.....	.	..	..	12	12	45	42					
Cheadle. 24,657.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice.....	1*	..	..	8	..	3	48	2				
Eccleshall. 5,595.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice	..	..	..	..	..	..	4					
Gnosall. 4,700.	Inspections & observations made												
	Formal notices by authority												
	Nuisances abated after notice.....	..	..	..	8	1	..	12					

* 2 Convictions.

RURAL—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Kingswinford. 19,990.	Inspections & observations made	173	106	8	2	..	20	36	18	59	48	129	63	3	32	36	23	20	20	13	..	4	36	849												
	Formal notices by authority	30	50	2	2	..	..	..	..	..	12	60	..	..	2	..	..	6	..	..	..	..	..	164												
	Nuisances abated after notice.....	160	84	8	2	..	20	36	18	59	48	90	63	3	32	36	23	20	20	13	..	4	36	775	..	..	..	3	3	..	30					
Leek. 14,269.	Inspections & observations made	16	10	4	3	15	86		22	23	102	93	31	19	36	30	23	16	18	14	..	2	5	568												
	Formal notices by authority	9	8	4	3	2	15		3	5	14	32	8	6	20	16	11	10	9	6	..	2	3	186												
	Nuisances abated after notice	10	9	4	3	2	13		3	5	13	30	8	6	18	15	20	8	7	4	..	2	2	182	..	..	..	16	9	310	53	10				
Lichfield. 26,084.	Inspections & observations made	8	14	5	9	..	126		..	31	130	460	27	8	35	32	140	15	47	9	..	1	22	1119												
	Formal notices by authority	..	1	..	..	..	..		..	..	.	2	..	..	..	..	3	..	..	..	..	..	..	6												
	Nuisances abated after notice.....	8	12	5	9	..	30		..	7	19	454	25	8	32	26	136	13	47	9	..	1	20	861	..	..	..	13	2	106						
Mayfield. 4,150.	Inspections & observations made	2	6	..	6	..	2	19	..	4	..	146	4	124	281			276	12	1	..	.	6	889												
	Formal notices by authority	..	..	..	6	..	..	5	..	1	..	12	2	..	8	5	19	1	6	1	..	..	4	70												
	Nuisances abated after notice.....	..	..	..	4	..	..	2	..	1	..	9	1	..	8	5	10	1	3	1	..	..	2	47	..	..	..	..	..	14	14					
Newcastle. 6,784.	Inspections & observations made	192				..	26	21	14	10	..	116	18	10	62			38	17	..	3	2	..	529												
	Formal notices by authority	16	14	2	2	..	4	3	..	..	..	10	1	..	15			2	5	..	..	..	..	74												
	Nuisances abated after notice.....	16	14	2	2	..	3	3	..	.	..	10	1	..	15			2	4	..	..	..	..	72	..	..	..	2	2	1	4	1	..	..	1	1

RURAL—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things.
Seisdon. 13,578.	Inspections & observations made	79	23	1	..	..	4	50	14	11	85	197	41	12	27	51	70	27	20	..	..	..	..	712												
	Formal notices by authority	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	190												
	Nuisances abated after notice.....	79	23	1	..	..	..	..	..	..	2	197	41	12	27	51	70	27	20	..	..	..	..	550	..	..	..	17	8	..	74	3				
Stafford. 10,780.	Inspections & observations made	Return not received owing to death of Inspector.																																		
	Formal notices by authority																																			
	Nuisances abated after notice.....																																			
Stoke-on-Trent. 5,013.	Inspections & observations made	52	36	4	..	..	248	8	36	..	48	6	12	52	..	..	..	..	2	..	..	..	504												
	Formal notices by authority	26	12	2	..	..	..	..	..	..	24	3	6	5	..	.	..	..	1	..	..	..	79												
	Nuisances abated after notice.....	26	18	2	..	..	..	..	..	..	24	3	6	26	..	..	..	..	1	..	..	..	106	1	..	..	..	..	37	37	2				
Stone. 8,600.	Inspections & observations made	4	3	5	..	..	119	7	6	108	23	43	..	..	..	..	18	4	..	..	..	..	..	340												
	Formal notices by authority	4	1	5	..	..	5	..	..	9	7	27	..	..	..	..	7	..	..	..	..	..	..	65												
	Nuisances abated after notice	4	1	4	..	..	5	..	..	6	6	25	..	..	..	..	5	..	..	..	..	..	..	56	..	..	..	..	..	..	9					
Tamworth.* 4,817.	Inspections & observations made	52	19	8	2	..	146	18	16	6	48	31	16	69				86	48	29	..	..	69	663												
	Formal notices by authority	31	5	2	..		6	3	2	3	7	4	2	18				6	4	7	..	..	10	110												
	Nuisances abated after notice.....	29	4	2	..	..	4	2	2	2	4	4	2	18				2	1	6	..	..	9	91	..	..	..	9	5	71	79	2				

* Staffordshire portion.

RURAL—continued.

District and Population.		Dwelling-houses and Schools. Foul conditions.	Structural defects.	Overcrowding.	Unfit for habitation.	Lodging-houses.	Dairies and Milkshops.	Cowsheds.	Bakehouses.	Slaughter-houses.	Canal Boats.	Ashpits and Privies.	Deposits of refuse & manure.	Water-closets.	House drainage. Defective Traps.	No disconnection.	Other faults.	Water supply.	Pigsties.	Animals improperly kept.	Offensive trades.	Smoke nuisances.	Other nuisances.	Totals.	Food supply & Water. Seizures of unwholesome food.	Samples of food taken for analysis.	Samples of food found adulterated.	Samples of water taken for analysis.	Samples of water condemned as unfit for use.	Precautions against infectious disease. Lots of infected bedding disinfected or destroyed.	Houses disinfected after infectious disease.	Schools disinfected after infectious disease.	Prosecutions for not notifying existence of infectious disease.	Convictions for not notifying existence of infectious disease.	Prosecutions for exposure of infected persons or things.	Convictions for exposure of infected persons or things
Tutbury. 9,145.	Inspections & observations made	15	21	5	2	..	115		9	10	..	315	15	..	106			12	18	10	1	..	11	665												
	Formal notices by authority	2	2	1	1	..	2		..	..	..	6	1	..	6			1	1	..	..	..	..	23												
	Nuisances abated after notice.....	15	15	5	2	..	10		..	3	..	50	12	..	53			6	12	10	1	..	11	205	..	..	..	7	3		6					
Uttoxeter. 8,300.	Inspections & observations made	17	9	..	2	..	272		11	10	..	112	9	35	9	7	..	49	22	..	..	..	..	564												
	Formal notices by authority	12	5	..	2	..	9		..	2	..	25	8	5	9	7	..	17	20	..	..	..	..	121												
	Nuisances abated after notice.....	8	5	..	2	..	5		..	2	..	15	8	5	9	7	..	15	20	..	..	..	..	101	1	..	..	..	..	..	28	3				
Walsall. 10,854.	Inspections & observations made	64	37	7	..	..	41	62	15	28	36	514	14	67	27	2	49	..	11	..	..	..	25	999												
	Formal notices by authority	37	17	7	..	..	1	4	1	2	..	79	9	9	14	2	38	..	7	..	..	..	17	244												
	Nuisances abated after notice.....	57	35	7	..	..	1	4	1	3	..	104	9	11	27	2	48	..	7	..	..	..	25	341	..	..	..	..	..	..	24	1				

STAFFORDSHIRE COUNTY COUNCIL.

ROYAL COMMISSION ON SEWAGE DISPOSAL.

Summary of Further Evidence on Fine-Grain Percolating Filters,

BY

GEORGE REID, M.D., D.P.H.

Presented to the County Council August 7th, 1906.

ROYAL COMMISSION ON SEWAGE DISPOSAL.

Summary of Further Evidence on Fine-Grain Percolating Filters,

BY

GEORGE REID, M.D., D.P.H.,

Medical Officer of Health to the Staffordshire County Council.

In my previous evidence before the Commission, I gave particulars of the working of a sewage disposal plant at Hanley, which had been constructed in order to determine whether single filtration of septic tank effluent through 4ft. 9in. filters would produce a good effluent in the case of the sewage in question. The filter plant, it will be remembered, consists of two beds, circular and rectangular, each having an area of quarter of an acre, and the filtering medium is broken saggers, graded to different sizes in four sections for comparative purposes, the distribution of the sewage on the filters being effected by highly-efficient power-driven apparatus, working at a delivery rate of 200 gallons per superficial yard per 24 hours.

It was proved by numerous analyses, extending over a period of eighteen months, that the best results were obtained from the fine-grain sections of the filters ($\frac{1}{8}$in. particles), and

these effluents were of a very high standard of purity. As the Commission, in view of the entire absence of suspended solids in the filter effluents, desired to have fuller information regarding what became of the solids—both organic and mineral—during the different stages of the treatment, I have since conducted further tests with special reference to that point. I also tapped the ⅛in. grade section of the rectangular filter at different depths, introducing four rectangular shallow trays with perforated covers, from which pipes were carried through the filter wall; I was thus able to collect effluents from 1ft., 2ft., 3ft., and 4·5ft. depths.

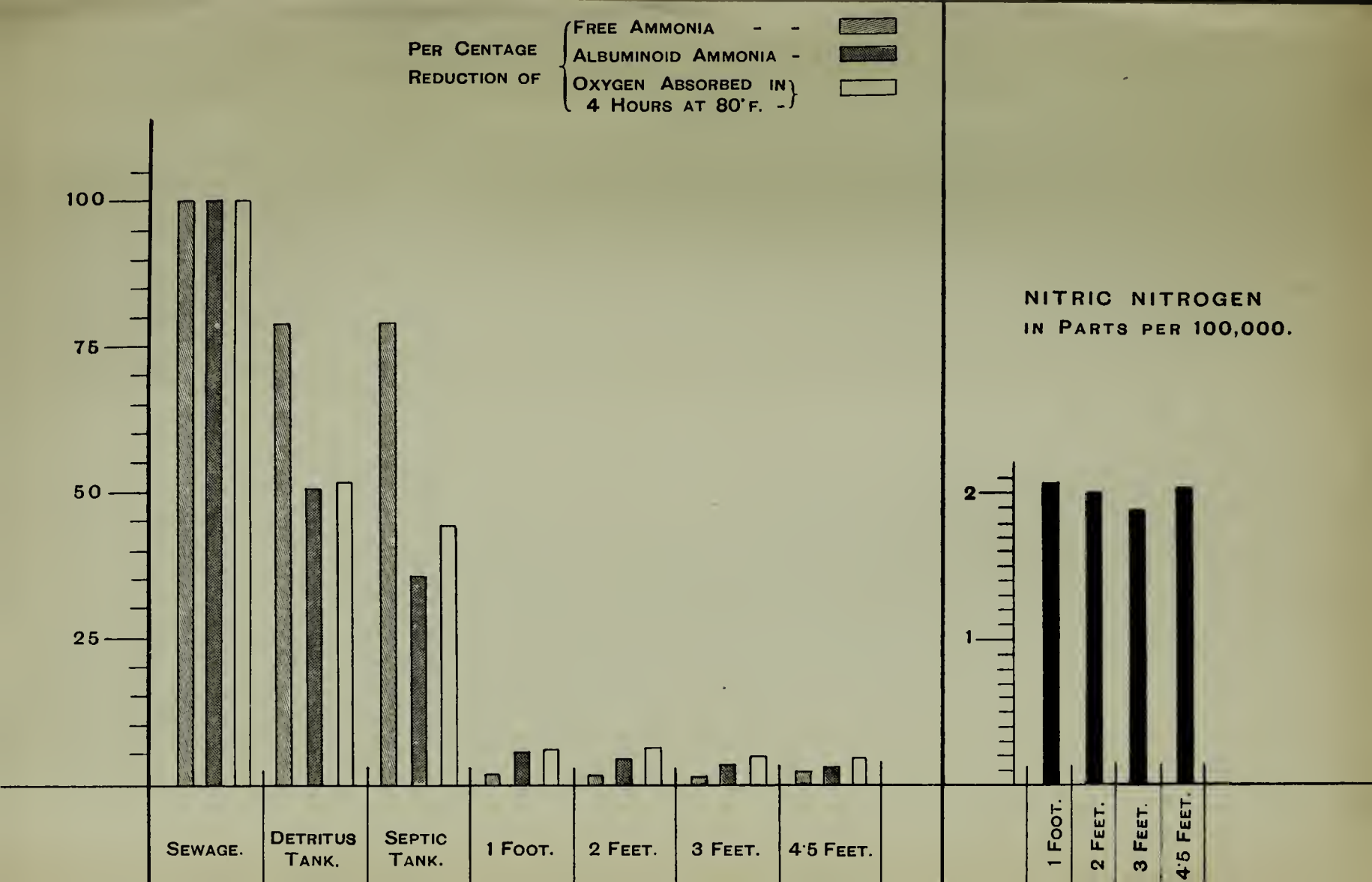
In order that the results from the lower depths might not be affected by the presence of the trays above, the trays were placed obliquely, from above downwards, so that no tray had another in a vertical line above it.

In analysing the sewage and effluents, in addition to the estimation of the mineral and organic suspended solids, the process was carried further than is usual; for example, both the nitrous and nitric nitrogen were estimated at the time of collection, and again when the fuller analyses were made—in every case the day after collection.

Samples of air were also collected from the filter at different depths for the purpose of estimating the amount of carbonic acid present; also the amount of solid organic matter in the interstices of the filter at different depths was ascertained.

The period covered by the analyses extended from July to December, 1905, inclusive, the filter at the end of that time having been in continuous use for a period of three years, dealing with the septic effluent at the rate of 200 gallons per superficial yard.

In the following table the mean figures of analyses are given, and the diagram attached shows, graphically, the percentage reduction in the free ammonia, albuminoid ammonia, and oxygen absorbed figures at different stages in the treatment, as well as the actual nitric nitrogen figure expressed in parts per 100,000 :—


Per Centage Reduction of
Free Ammonia
Albuminoid Ammonia
Oxygen Absorbed in 4 Hours at 80°F.
100
75
50
25
Sewage.
Detritus Tank.
Septic Tank.
1 Foot.
2 Feet.
3 Feet.
4·5 Feet.
Nitric Nitrogen in Parts per 100,000.
2
1
1 Foot.
2 Feet.
3 Feet.
4·5 Feet.

Sample.	No. of Records.	Total Solids.	Solids in Suspension.	Solids in Suspension (Organic).	Solids in Suspension (Mineral).	Chlorine.	Free Ammonia.	Albuminoid Ammonia.	Oxygen absorbed in 4 hours at 80°F.	Oxygen absorbed in 3 minutes before incubation.	Oxygen absorbed in 3 min. after incubation (3 days).	Nitric Nitrogen on day of collection.	Nitric Nitrogen day after collection.	Nitrous Nitrogen on day of collection.	Nitrous Nitrogen day after collection.	Column necessary to obscure test lines (inches).
	Parts per 100,000.															
Sewage	18	170·9	63·5	28·5	34·9	11·0	2·154	0·972	5·019	1·862	2·176	0·02	0·10	0·029	0·029	0·5
Detritus Tank ...	13	118·1	17·0	6·8	10·1	10·0	1·643	0·486	2·726	0·975	1·095	0·02	0·09	0·014	0·022	1·6
Septic Tank... ...	16	107·8	7·6	3·8	3·8	9·9	1·716	0·340	2·184	0·836	1·571	Nil.	0·09	Nil.	Nil.	1·5
Filter, 1 ft. ...	16	101·5	0·25	0·16	0·08	9·4	0·036	0·052	0·328	0·093	0·067	1·64	2·07	0·003	0·003	Over 24
,, 2 ,, ...	16	101·1	0·09	0·05	0·03	9·5	0·020	0·037	0·286	0·077	0·060	1·82	1·99	0·011	0·007	,,
,, 3 ,, ...	16	101·8	0·14	0·06	0·08	9·4	0·009	0·031	0·244	0·060	0·052	1·75	1·85	0·005	0·008	,,
,, 4·5,, ...	16	103·5	...	...	...	9·5	0·043	0·027	0·259	0·070	0·039	1·70	1·99	0·005	0·002	,,

Comments on Figures of Analyses.

1. With regard to the suspended solids, it will be noticed that a reduction of 73% is effected in the detritus tanks, and that a further reduction of 15% takes place in the septic tank, making a total reduction of 88%, and resulting in an effluent being passed on to the filter containing 7·6 parts per 100,000, exactly one-half of which is mineral matter. This suspended matter, it will be seen, is practically all retained in the top layer of the filter where the organic portion is liquefied, in all probability by ærobic organisms. The mineral matter, however, must remain in the filter, and in time, no doubt, it will be found necessary to remove the filtering medium to a depth of a few inches for the purpose of washing it, but, so far, after over three years' constant working, no such necessity has arisen. As a matter of fact, if the total mineral suspended solids passing on to the filter during the three years were deposited in a uniform layer over the whole surface the depth of the coating would be less than 1¼ inch.

2. The reduction of the free ammonia at a depth of one foot is remarkable, especially considering the fact that the change has been effected in about 12 minutes—the time occupied by the sewage in passing downward through the first foot of filter. In my experience it is not unusual to find the free ammonia figure reduced almost to an equal extent in effluents from fine-grade filters, but, hitherto, I had no conception that the change was brought about by so shallow a depth of filter.

I may here mention that the rate of travel downwards of the sewage through the filter was found, as the result of several observations, to vary in accordance with the depth as follows :—

From surface to 1ft.	12 minutes.
,, 1ft. to 2ft.	12 ,,
,, 2ft. to 3ft.	6 ,,
,, 3ft. to 4ft. 6in.	5 ,,
Total	35 minutes.

This is a slow rate of travel, compared with the rate in the case of large particle filters, which, in my experience,

in some cases, allow the sewage to pass through the entire depth of from four to five feet in about four minutes.

The free ammonia figure presents one other interesting feature. It will be noticed that the progressive reduction which takes place during the passage downwards through the first three feet is suddenly interrupted, a considerable increase in the amount being recorded at a depth of 4ft. 6in. Accidental error in analysis does not explain this, for the increase was invariably recorded, and, as a matter of fact, I verified the accurary of the results by a second analysis in the case of the first few samples until it became quite obvious that no such explanation of the occurrence was feasible. I shall refer to this phenomenon later in dealing with the general arguments and conclusions.

3. As regards the albuminoid ammonia figure, it will be seen that a highly satisfactory reduction is effected by filtration through one foot only. In fact, this figure and the oxygen absorbed and nitric nitrogen figures considered together indicate a very high degree of purification which precludes the possibility of subsequent putrefactive change.

4. It will be seen that the reduction in the oxygen absorbed is, stage by stage, proportionate to the albuminoid ammonia reduction, and the rapidity of the change in this case also is equally marked.

5. With reference to the oxidised nitrogen, the figures are very startling, for, not only are they indicative of extremely healthy and active biological conditions, but, considered in relation to the other figures, they a so demonstrate conclusively, in the case of the sewage in question at any rate, that the work of purification is practically completed within a few inches of the surface of the filter. I must say that this result surprised me very much. Theoretically, one expected to find that the process was a more gradual and progressive one, nitrites being formed chiefly in the superficial layers of the filter and nitrates in the deeper layers, but this did not prove to be the case. At the same time, I do not suggest that the change is not gradational, but rather that the two sets of organisms are at work side by side, and in this case the absence of more than a trace of

nitrous acid in the one-foot effluent, although the tests were applied at the moment of collection, may be accounted for by the preliminary stage of the oxidation process being an extremely evanescent one, owing to the highly efficient working conditions.

General Comments.

In advocating the use of fine filtering medium when discussing the subject from time to time with Engineers and others interested in the question, the objections almost invariably urged against such fine medium are (1) the risk of clogging from suspended matter, and (2) the alleged defective æration. According to my experience, which is by no means confined to the work embraced in this paper, clogging is more likely to occur with large than with fine-grade medium, owing to the fact that the suspended solids in the former case are not retained in the surface layers, where it would seem the active ærobic liquefying changes are effected, but are washed into the deeper layers where, in place of being liquefied, they accumulate and ultimately fill up the interstices. For this reason, if I were compelled to sacrifice my convictions and make use of large filtering medium, my inclination would be to adopt the suggestion which was the outcome of a long series of experiments at Leeds, and use such a large size as would allow of the suspended solids being washed through, and face the cost of providing means for their removal from the effluent afterwards. In other words, in my opinion, if clogging is to be avoided, the filtering medium must either be fine or very coarse; the solids must either be retained and liquefied on the surface or washed through and mechanically removed afterwards.

With reference to the second objection—the difficulty of æration—I fail to see why it should be advanced, in view of the incontrovertible fact that high nitrification is obtained by means of fine-medium filters. Personally, I am satisfied that if it were desirable, which I think it is not, to use much finer medium than ⅛in., there is no reason, from an æration point of view, why we should not do so. The only argument which weighs against the efficiency of a smaller-grade medium than ⅛in. is, that with very fine material

the suspended solids are apt to be retained on the actual surface, where rapid liquefaction cannot take place unless frequent raking and forking is resorted to. On the other hand, the suspended solids are in a sufficiently fine state of division to permit of penetration into ⅛in. medium, and being thus, I suggest, brought into intimate contact with highly active ærobic liquefying organisms, resolution is rapidly effected.

The three essential factors in the final changes are time, air, and organisms, and, given a sufficiency of air, the greater the number of organisms present the larger the amount of work done, provided the organic matter, both in solution and suspension, is brought into intimate contact with the organisms. The factor which governs the bacterial population is the area available for growth, and this may be increased by two methods, either by enlarging the cubic capacity of the filter or by subdividing the filtering medium. In the case in point, as, indeed, in all cases in Staffordshire, the latter was the expedient adopted, and the sub-division was carried as far as it was thought possible to carry it without preventing the superficial penetration of the suspended solids into the interstices. In view of the results, it is needless to discuss whether the reduction in the size of particles resulted in an inadequate air-supply.

The relative amount of carbonic acid in the air of the filter at different depths also shows the highly-active oxidising changes which take place in the superficial layers. A series of samples of air aspirated from different depths by means of iron tubes driven vertically into the body of the filter while in continuous use yielded the following mean results :—

Carbonic Acid in parts per 1,000.			
1 ft.	2 ft.	3 ft.	4 ft.
19·5	21·5	20·0	20·0

An interesting fact bearing upon the æration of the filter was incidentally made apparent by the method at first adopted of collecting the air. The distributor passing backwards and forwards over the filter was found to interfere

considerably with the collection of the samples, and, to obviate this, the apparatus was periodically stopped for varying periods during the operation. Owing, however, to extraordinary discrepancies in the results thus obtained, measures were taken to overcome this difficulty and enable the air to be collected without interrupting the regular flow of sewage on to the filter. The results, of which the figures just given are the means, were then found to be remarkably uniform, whereas in the case of the earlier samples the carbonic acid varied in amount according to the intervals which elapsed between the stopping of the distributor and the collection, short though these intervals were, from 2·8 to 26·1, showing how free was the current of air through the filter.

If, then, by using fine-grade particles, the depth of filter may be greatly reduced, the resulting economy would dictate such a course, but there is another important consideration, which, other things being equal, tells in favour of shallow filters, from the point of view of æration. The air travels through a filter from above downwards, the direction of the current probably being mainly due to the percolation downwards of the sewage, and its more rapid flow along the effluent drains. The air, therefore, as it passes downwards, carries with it the products of the combustion which has taken place above, and thus has an asphyxiating effect upon the organisms below, and it is possible that even an ærobic fermentation may be revived in the bottom layers. The sudden increase in the free ammonia figure, noted in the case of the effluent from the lowest tray, may possibly be accounted for in this way, because the albuminoid ammonia figure does not represent the total organic nitrogen present, therefore, there is an unrecorded margin of nitrogenous organic matter available for the revival of the ammonia change should this explanation of the phenomenon be the correct one.

Be this as it may, however, the phenomenon does not appear to be accounted for by fouling of the deeper strata. At the end of the observations the filter was opened and carefully examined throughout its depth, when it was found that the dark discolouration from deposit was confined to the surface, as was evident from the untarnished appearance of

the light-coloured filtering medium below the top 14 to 18 inches. Also, the relative amount of organic solids in the interstices at different depths, ascertained by drying and igniting 10 grammes of the filter particles in each case, supports this contention, as the following figures show :—

Percentage Loss on Ignition of Filter Particles at different depths.				
6 in.	1 ft.	2 ft.	3 ft.	4 ft.
3·25	0·99	0·65	0·53	0·53

Apart from all theory, however, the fact has been established beyond all doubt, that, in the case of the sewage in question at any rate, the lower two or three feet of filter medium is absolutely unnecessary, and, so far as the cost of construction of the filter is concerned, the expenditure might be reduced by about one-half. Again, from the point of view of cost, another important consideration comes in. It frequently happens that the absence of two or three feet of available fall is the determining factor between a gravitation and pumping scheme, and in this respect the reduced depth of filter might lead to further economy, not only in capital outlay, but in maintenance charges.

Now, the question may be asked whether the experience acquired at Hanley may be applied in other cases where the sewage may be of a stronger character ? I am not at present in a position to give a positive answer to that question, but if, as is probable, such should prove not to be the case, the observations I have recorded clearly point to the conclusion that the extra filtering capacity should be provided for by increasing the area rather than the depth of the beds. The three factors in the nitrifying process being a given time, a given volume of air, and a given bacterial population, all these would be supplemented by extending the area in accordance with the combustion which has to be effected, and thereby diminishing the delivery per square yard of filter.

I have lately had an opportunity of applying the information recently acquired at Hanley in the case of a town in Somersetshire, where the sewage is much stronger and contains brewery refuse.

A scheme, which had been based upon experiments previously conducted by the Surveyor of the District, was submitted to me for approval. The experimental filters, which had a depth of 4ft. 6in., were composed of clinker, broken to sizes varying from ¾in. to ½in., the distribution being by means of sprays.

The results obtained were fairly satisfactory as regards nitrification, but the organic matter remaining unconverted was considerable, and the effluent, so far as appearance went, was a poor one. The Engineer, however, had recommended a scheme on similar lines, but with 5ft. 6in. filters, believing that the extra depth would effect further and adequate purification.

In view of my Hanley experience, I recommended that the experiment should be continued, one-half of the area of the filter being altered as follows :—The top 12 inches of clinker to be removed from one-half the area of the filter and replaced by ¼in. to ⅛in. granite chippings, and a collecting tray to be introduced at a depth of 3ft. from the surface of this altered section. We thus had an opportunity of comparing the results obtained by the altered section at depths of 3ft. and 4ft. 6in. with those from the undisturbed section at a depth of 4ft. 6in., under identical working conditions.

So far, I have had an opportunity of analysing two sets of samples from the two sections of the filter, and the following are the means of the more significant results obtained :—

	Parts per 100,000.		
	Unaltered section of filter at 4ft. 6in. deep.	Altered section of filter at 4ft. 6in. deep.	Altered section of filter at 3ft. deep.
Solids in Suspension	2·10	1·15	1·00
Free Ammonia...	0·710	0·250	0·067
Albuminoid Ammonia	0·154	0·107	0·044
Oxygen absorbed in 4 hours at 80° F.	0·818	0·680	0·368
Nitric Nitrogen	1·04	1·16	2·58

It will be seen that the improvement effected by apparently so trivial an alteration is remarkable. The improved quality of the effluents from the altered section of the filter at a depth of three feet compared with those from the same section and the unaltered section at a depth of 4ft. 6in. is most striking.

If, then, my conclusions are generally applicable, their bearing, from the point of view of the present requirements of the Local Government Board, is of considerable importance. So far as the nitrifying beds are concerned, cubic capacity in relation to sewage flow appears to be the governing factor as regards the Board's requirements, and while a minimum depth of four feet is imposed, it is permissible to extend the depth even to nine feet, the surface area being reduced in proportion.

This rule, when we come to apply it, works out as follows :—The Board's standard, as regards working capacity per day, is 56 gallons per square yard per foot deep, so that, given a filter four feet in depth, the daily volume passed through it would be 224 gallons per superficial yard, as compared with 504 gallons, the permissible volume in the case of a filter nine feet deep.

Further, it does not concern the Board what sized material is used to form the beds ; lumps of from two to four inches in diameter being as readily approved as particles of ⅛in.

Of course I do not suggest that the depth of fine-grain filters may be reduced to one foot, because we must allow for the effluent drains and the few inches of large material immediately on the top of them, but I do suggest the practicability of reducing the total depth to, say, 2ft. 6in.

GEO. REID,
County Medical Officer.

Stafford,
22nd May, 1906.